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United States  
Department of  
Agriculture

Forest Service

Pacific  
Northwest  
Region

1994



# Monitoring Report for the Land and Resource Management Plan

Fiscal Year 1993

DATE RECEIVED  
12/10/93  
OFFICE OF THE DIRECTOR  
AGRICULTURAL DIVISION

# Wenatchee



## NATIONAL FOREST

# WENATCHEE NATIONAL FOREST

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September 15, 1994

Dear Forest User,

The Wenatchee Forest Plan establishes general direction for all resource management activities on the forest. It provides for forest protection and coordinated multiple-use management of outdoor recreation, range, timber, watershed, wildlife and fish, minerals, and Wilderness. Its overall purpose is the sustained production of goods and services for the benefit of the American people.

Monitoring is a key part of Forest Plan implementation. This report summarizes and highlights Forest Service monitoring activities for fiscal year 1993 (October 1, 1992 to September 30, 1993). This is our fourth Forest Plan monitoring and evaluation report.

As Wenatchee Forest Supervisor, I am responsible for ensuring that all forest management activities comply with the Forest Plan forest-wide standards and guidelines and management area prescriptions. The monitoring and evaluation program tells us how good a job we are doing in implementing the promises made in the plan. To keep you informed, I have prepared this annual "Monitoring Report" which describes progress made in implementing the Forest Plan as reflected by monitoring and evaluation.

If you have questions, concerns, or comments regarding information in this report, a postage-paid response form is enclosed for your convenience. The response form also asks your thoughts about proposed forest plan amendments and possible projects which would help implement the plan. Inside the cover of this document are the addresses of our Ranger Districts and Supervisor's Office. I hope you will continue to be involved with the management of your Wenatchee National Forest.

Sincerely,

A handwritten signature in dark ink that reads "Sonny J. O'Neal". The signature is fluid and cursive, with the first and last names being more prominent.

Sonny J. O'Neal  
Forest Supervisor

## **NOTICE**

The RECORD OF DECISION (ROD) for the FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (FSEIS) was signed on April 13, 1994. With the signing of the ROD and the implementation of the Allocations and Standards and Guidelines contained in the FSEIS, the Wenatchee National Forest Land and Resource Management Plan is amended along with other National Forest Plans within the Range of the Northern Spotted Owl. The selected alternative in this decision is referred to as the April 13, 1994, amendment to the Wenatchee National Forest Plan. This will result in significant changes in management and outputs produced on the Wenatchee National Forest. If you are interested in receiving a copy of the FEIS and/or the ROD you should contact Plan Support Group, P.O. Box 3623, Portland, OR 97208, (503) 326-7472.

The following information contained in this monitoring report pertains to the monitoring and evaluation of activities in 1993 and do not reflect the changes in the FSEIS.

**F I S C A L   Y E A R**

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# **MONITORING REPORT**

## **LAND AND RESOURCE MANAGEMENT PLAN**

**W E N A T C H E E  
N A T I O N A L   F O R E S T**

**W A S H I N G T O N**



**SEPTEMBER 1994**

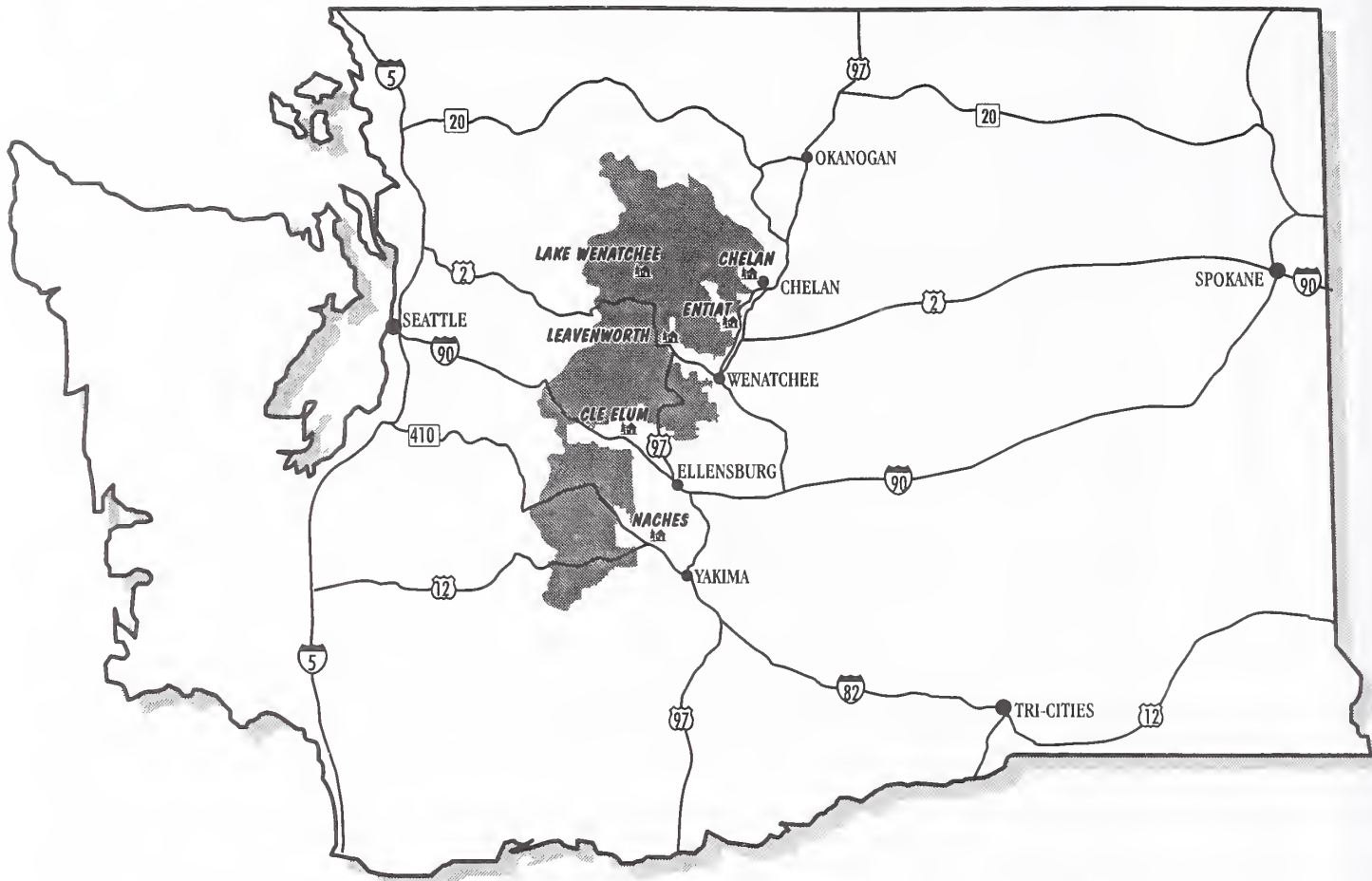
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# WENATCHEE NATIONAL FOREST



WASHINGTON

# **I. INTRODUCTION**

## **A. PURPOSE OF THE MONITORING REPORT**

The Wenatchee Forest Plan was implemented in 1990 after 10 years of analysis and extensive public review and comment. The plan meets requirements of a Federal Law, The National Forest Management Act of 1976. It provides standards, guidelines, land allocations, and philosophy which serves as the basis for all Forest Service management on the 2.1 million acre Wenatchee National Forest.

The purpose of this annual report is to provide information to the Regional Forester, Forest Leadership Team, and the public on how well the Forest Plan objectives are being met. This and subsequent reports will be used to provide information for the annual and five-year (1995) Forest Plan evaluations. At the five-year point, a detailed evaluation report will be submitted with recommended actions for the Forest Supervisor's consideration. The monitoring and evaluation process will provide information to determine if:

- laws, regulations, and policies are being followed, including those found in the Forest Plan Management Area Prescriptions and Forest-wide Standards and Guidelines, the Regional Guide, and Forest Service Handbooks.
- the management prescriptions are producing the predicted Goals and Objectives or Desired Future Conditions of the Forest environment.
- cost and annual budgets of implementing the Plan are within projected limits.
- the projected range of outputs is being produced. It will also evaluate effects.

A number of monitoring systems are already in place to comply with administrative and legal responsibilities. Forest Plan monitoring does not replace these systems, but rather complements them by addressing specific issues and concerns identified through the planning process. It provides additional information for determining the effectiveness of the Forest Plan.

## **B. GENERAL INFORMATION**

As in 1992, this year's report format is different than the formats used in the Wenatchee National Forest's 1990 and 1991 Monitoring Reports. The Wenatchee Forest has adopted the recommendations and format contained in the Region 6 "1993 Forest Monitoring and Evaluation Guide," so the major changes are incorporated in this Wenatchee National Forest Monitoring Report for FY-1993.

Monitoring is done to measure progress in Forest Plan implementation. It consists of gathering data, making observations, and collecting and disclosing information. Monitoring is also the means to determine how well objectives of the Plan are being met, and how appropriate the management standards and guidelines are for meeting the projected Forest outputs and protecting the environment. Monitoring is used to determine how well assumptions used in development of the Forest Plan reflect actual conditions.

Monitoring and evaluation may lead to changes in practices or provide a basis for adjustments, amendments, or Plan revisions. Monitoring is intended to keep the Forest Plan dynamic and responsive to change and new information.

## **II. SUMMARY OF RECOMMENDED ACTIONS**

This section includes a summary discussion and a table of those monitoring items needing attention from the Forest Supervisor and Forest Leadership Team. Group Leaders responsible for each monitoring item have recommended actions based on their evaluation results. The following categories of actions were used:

### **RESULTS ARE ACCEPTABLE/CONTINUE TO MONITOR**

The results for these monitoring questions were either within the "Threshold of Variability" listed in Chapter V of the Forest Plan, or more than one or two years of data is needed to evaluate the results. For some elements, several years' data collection is necessary to evaluate the effectiveness or validity of the Plan. Studies are being initiated to provide the baseline data and inventories necessary to answer these questions.

### **CHANGE MANAGEMENT PRACTICES**

Areas where the results exceeded the "Threshold of Variability" for a particular monitoring item question in Chapter V, and an evaluation of the situation indicated the need to change practices to comply with the Forest Plan.



## **FURTHER EVALUATION/DETERMINE ACTION**

Results may or may not have exceeded the Threshold of Variability, but additional information is needed to better identify the cause of the concern and to determine further actions.

## **PROPOSE FOREST PLAN AMENDMENT**

Areas where results were inconsistent with the Forest Plan objectives or the Forest Plan direction was not clear. The follow-up action requires either changing or clarifying the Forest Plan through the amendment or revision process. Nonsignificant amendments may be made by the Forest Supervisor. Significant amendments require Regional Forester approval.

The following table summarizes the follow-up actions needed for each Monitoring Question. Following the table is a brief discussion of each monitoring area where follow-up action is required.

## SUMMARY TABLE

Monitoring Item	Results OK, continue monitoring	Change Management Practices	Further Evaluation	Propose Forest Plan Amendment
Recreation Opportunity Spectrum	■			
Trails			■	
Developed Recreation			■	
Management of Dispersed Recreation Areas	■			
Wild, Scenic, and Recreation Rivers	■			
Scenery Management		■		
Wilderness			■	
Cultural Resources (Heritage Resources)	■			
Coordination of Forest Programs with Indian Tribes	■			
Sensitive Plants, Biodiversity, and Old Growth	■		■	
Old Growth and Mature Habitat Indicators	■			
Mountain Goat Habitat	■			
Deer and Elk Habitat	■			
Primary Cavity Excavators	■			
Bald Eagle Habitat	■			
Peregrine Falcon	■			
Grizzly Bear	■			
Grey Wolf	■			
Marbled Murrelet	■			
Bighorn Sheep	■			
Townsend's Big-Eared Bat	■			
California Lynx and California Wolverine	■			
Ferruginous Hawk	■			
Common Loon	■			
Harlequin Duck	■			
Red-Legged Frog and Western Pond Turtle	■			
Western Grey Squirrel	■			
Hawk and Owl Nest Sites	■			
Timber Offered	■			
Timber Harvest Units	■			
Timber Harvest	■			
Silvicultural Practices	■			
Reforestation	■			
Lands Not Suitable for Timber Management	■			
Maintenance of Long-Term Soil Productivity	■		■	
Riparian			■	
Water and Fish Habitat	■			
Columbia R. Basin Anadromous Fish Policy Implementation	■			
Aquatic Habitat Objectives	■			
Fish Kill Associated with the Meadow Creek Fire	■			
Range Management	■			
Road Management	■			
Insect and Disease			■	
Forest Fire Protection	■			
Use of Prescribed Fire	■			
Air Resource Management	■			
Mining Site Reclamation			■	
Mining Operating Plans	■			
Community Effects	■			
Resource Budgets	■			
General Monitoring of Standards and Guidelines	■			

# RECOMMENDATIONS

The recommendations included below summarize the individual monitoring element evaluations contained in the following pages of this report.

## A. RECREATION

### Recreation Opportunity Spectrum (ROS)

1. No additional action is necessary except to continue monitoring as scheduled.

### Trails

1. Continue to request more trail maintenance funds to keep up with maintenance needs.
2. Continue emphasis on our commitment to avoid trail impacts from other activities and restore any trail impacted by timber harvest activity. Use funds raised by the timber sales (KV funds) to do this work, where appropriate.
3. We completed the recreation use Environmental Assessment for the Alpine Lakes Wilderness. The decision should help reduce resource impacts associated with the trail system in this Wilderness. Numbers of visitors will be limited by an entry quota permit system in three heavily used areas of the Alpine Lakes Wilderness. Trail impacts should be eased in these areas and trail maintenance efforts should be able to catch up with needed drainage and tread work.

### Developed Recreation

1. The Forest issued permits to a concessionaire to operate seven developed sites in 1993. This program went fairly well for the first year and will improve as the operators become more experienced with these sites. The benefits of the concessionaire program are as follows:
  - a. Campgrounds can be open to the public at a full-service level with greatly reduced costs to the Forest.
  - b. The maintenance work needed at these sites will be completed.
  - c. Similar, or perhaps higher quality, service can be provided to the public.
  - d. Resources are freed up for Forest Service personnel to concentrate work in other areas to provide high quality recreation experiences.
2. Additional campgrounds will be added to the program in 1994.
3. Vegetation management plans are being developed for three campgrounds with significant root disease problems: Tronsen, Goose Creek, and Kachess. Tronsen campground is closed to the public until removal of hazard trees can be completed.

4. Vegetation Management Plans need to be completed at several other sites. Unsound trees are susceptible to blowdown in the wind, posing a hazard to campers. Plans need to be implemented as soon as possible to eliminate hazardous trees, stop the spread of tree diseases, and provide an acceptable recreation setting while rehabilitation of sites occurs. We will continue to upgrade recreation site quality and amenities available through the Capital Investment Program, partnerships, and special programs such as the President's recreation initiative.

## **Management of Dispersed Recreation Areas**

1. Many dispersed recreation sites are in need of attention. These sites are often located near streams and other water sources. Inventories need to be completed on these sites and some rehabilitation plans completed and actions taken to mitigate adverse effects.
2. New dispersed recreation sites are being developed along waterways, especially on the Naches and Cle Elum Ranger Districts. Management is needed to regulate these activities and direct them into places that are appropriate for them to occur.
3. Activities that are occurring in concentrated areas of dispersed recreation use are in need of management. In some cases, Forest Orders are needed to control discharge of firearms, noise, forest fires, and other "good neighbor" matters.
4. Dispersed sites need to be constantly monitored with respect to Forest Plan standards and guidelines.

## **B. WILD, SCENIC, AND RECREATION RIVERS**

1. No additional action is necessary except to continue monitoring as scheduled.

## **C. SCENERY MANAGEMENT**

### **Blewett Pass Highway 97 Viewshed**

1. To maintain scenic values, additional vegetative changes along the roadside from the top of Blewett Pass to Bonanza Campground should be kept to a minimum adjacent to areas of past vegetative treatments except to ensure public safety in campgrounds and adjacent to Highway 97.
2. Continue working with the Department of Transportation and permittees to minimize signs, structures, and roadside improvements.

### **White Pass Viewshed**

1. Expedite completion of the Tieton Dam Interpretive Stop—specifically the final design of parking area and interpretive signage.
2. Continue to work with White Pass Ski Company to improve signs and landscaping.



3. Continue monitoring Highway 12 to maintain the highest possible scenic quality by designing all activities to retain naturally appearing scenery.
4. Continue to work in concert with the Washington State Department of Transportation toward safety, functional, and aesthetically pleasing structures in project planning.

### **Shady Pass Viewshed**

1. Identify areas adjacent to the existing old cutting units which require scenic rehabilitation before any further vegetative treatment is planned.
2. Find alternative solutions for cut bank restoration to reduce visual contrast of roads.
3. Consult landscape architects to provide an analysis of rehabilitation needs.

### **Stand Character Goals**

1. No additional action is necessary except to continue monitoring as scheduled.

## **D. WILDERNESS**

### **Recreation Impacts on Wilderness Resource**

1. The initial site inventories need to be completed as soon as possible.
2. During the next revision of the Forest Plan, we need to revisit the indicators and standards for the Forest Plan and Alpine Lakes Plan.
3. The Forest should complete the Monitoring Guide to ensure consistency in monitoring between Forests and Districts managing the same Wildernesses.

## **E. CULTURAL RESOURCES (HERITAGE RESOURCES)**

### **Cultural (Heritage) and Historical Site Protection**

1. The Forest standards cannot be changed as these reflect Federal legal compliance requirements. Thus, clarification of management direction appears necessary in order to have all projects in compliance. This was partially accomplished by a presentation to the Forest's Leadership Team which highlighted these oversights and repeated the need for project planners to be aware of compliance with national historic preservation laws. There may be a need for further training of project planners in national historic preservation laws.
2. The natural degradation brought on by the Wenatchee River is under study, with further work (besides the data recovery accomplished in FY-1992 and 1993) being planned in FY-1994. This stand will examine ways of stabilizing river banks and consider the urgency of further data recovery for the cultural sites involved.

3. The Forest's inventory strategy appears to generally be working well where surface visibility is not totally obscured. However, the Forest's inventory strategy is now ten years old and is in need of further analysis and revision. This will be undertaken once the Forest's cultural property Geographic Information Systems data layer and data base is fully operational.

## **Cultural (Heritage) and Historical Site Protection**

1. For the moment, no further action is needed. Annual monitoring of endangered structures needs to be continued so that emergency measures could be undertaken if needed. Annual monitoring of eroding sites also needs to continue to determine if sudden substantive erosion occurs and immediate action is needed.

## **F. COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES**

### **Coordination and Communication of Forest Programs with Indian Tribes**

1. No additional action is necessary except to continue cooperation and monitoring as scheduled.

## **G. SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH**

### **Maintenance of Sensitive Plant Populations**

1. Continue to monitor existing plots and to standardize methodology.

### **Biodiversity**

1. New monitoring items for biodiversity will need to be developed consistent with the April 13, 1994, amendment to the Wenatchee Forest Plan.

### **Old-Growth Ecosystems**

1. No additional action is necessary except to continue monitoring as scheduled.

## **H. WILDLIFE**

### **Old Growth and Mature Habitat Indicators: Spotted Owl, Pileated Woodpecker, Marten, and Three-Toed Woodpecker**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Mountain Goat Habitat**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Deer and Elk Habitat**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Primary Cavity Excavators**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Bald Eagle Habitat**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Peregrine Falcon**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Grizzly Bear**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Grey Wolf**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Marbled Murrelet**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Bighorn Sheep**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Townsend's Big-Eared Bat**

1. No additional action is necessary except to continue monitoring as scheduled.

## **California Lynx and California Wolverine**

1. It is recommended information be gathered on the use by lynx of forest types other than lodgepole pine.

## **Ferruginous Hawk**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Common Loon**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Harlequin Duck**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Red-Legged Frog and the Western Pond Turtle**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Western Grey Squirrel**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Hawk and Owl Nest Sites**

1. No additional action is necessary except to continue monitoring as scheduled.

# **I. TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES**

## **Timber Offered**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Timber Harvest Units**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Timber Harvest**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Silvicultural Practices**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Reforestation**

1. No additional action is necessary except to continue monitoring as scheduled.

## **Lands Not Suitable for Timber Management**

1. No additional action is necessary except to continue monitoring as scheduled.

# **J. SOIL, WATER, FISHERIES, AND RELATED WATERSHED MANAGEMENT**

## **Maintenance of Long-Term Soil Productivity**

1. Discontinue the practice of combined timber logging and mechanical (tractor) piling on ash/pumice and other susceptible fine texture soils.
2. To the extent practical, utilize timber sale contract provisions to designate and use the same skid trails on multi-entry activities to minimize compaction and other soil disturbance.



3. Continue monitoring tractor logged and tractor logged/piled areas to see if they are within the Forest Plan Standards.
4. Restore sites that do not meet Forest Plan Standards and Guidelines by appropriate methods and techniques including ripping and seeding skid trails and landings and by avoiding practices that will cause further degradation.
5. In addition to bulk density, point sampling of soil textures, organic duff, nutrient, and organic matter content should be considered. Monitor surface erosion parameters, such as ground cover, and the effectiveness of drainage features and road closures.
6. Better records are needed to show site condition during activities and to document operations. Assemble and integrate knowledge of past activities on each site and incorporate it into project analysis.

## **RIPARIAN GUIDELINES AND RECOMMENDATIONS**

### **Fish/Riparian Standard and Guideline Implementation**

1. The Review Team felt that the approach used in this review was very useful and should be utilized in any forest implementation monitoring. It was helpful to have the Review Team see the complete NEPA file, analysis file and contract package, and to review the entire project documentation with the District Team that had prepared it. It was particularly insightful to be able to track mitigation measures throughout the entire process to ensure that recommendations included in the NEPA documentation did, in fact, become part of the contract and implementation plan, and actually happened on the ground.
2. The importance of implementation monitoring is recognized. Plans don't make for successfully completed projects without follow-through. This type of follow-through should be conducted both informally and as formal unit review at both the Ranger District and Forest levels. It should involve the full component of interdisciplinary team skills.
3. The importance of defining specific desired future conditions for riparian management areas was emphasized. That includes recognizing the key processes for attaining or maintaining desired conditions. Overall, this appears to be happening fairly well in design and location of cutting units, though less so with prescribed burn plans and access travel management issues.
4. Landform and soil mapping, analysis, and interpretation is an important technical element of project level planning and should be included in all plan development and execution.
5. Specific riparian management objectives were not always identified as directed by the Forest Plan. Continued implementation monitoring should be conducted to ensure that these objectives have been identified.

## **Effectiveness of Riparian Standards and Guidelines**

1. Continue to develop standards based on the ecological characteristics of a specific watershed.
2. Ensure that projects do not contribute to any further degradation below the current standards. The implementation monitoring is a key element in keeping projects consistent with the law.

## **Fish Management Indicator Species (MIS) Populations**

1. Continue to cooperatively monitor bull trout spawning population.
2. Ensure that no management actions adversely affect habitat or populations. The implementation monitoring is a key element in keeping projects consistent with the law.
3. There is a need to reduce poaching of bull trout. This may be achieved by closing streams to fishing and reducing recreational access. The first option is the responsibility of the Washington Department of Fisheries and Wildlife. This recommendation needs to be strongly considered for areas such as Box Canyon Creek, which gets heavy recreational use, has very low spawning population, and where evidence of poaching has been noted.

## **Columbia River Basin Anadromous Fish Policy Implementation and Salmon Summit Action Plan Commitments**

1. Continue the progress the Forest is making to refine our understanding of watershed processes.
2. Institutionalize a watershed approach to ecosystem management.
3. Develop, implement, evaluate, and report on the monitoring program.
4. Continue our habitat inventory and desired future condition analysis.

## **Aquatic Habitat Objectives**

1. In the past, stream improvement projects were based on recognition of a local problem. Now they are based on a detailed assessment of current conditions.
2. The emphasis on watershed analysis in FY-1994 will put more emphasis on watershed guide definition of resource improvement needs. We need to keep developing site-specific standards for habitat conditions that reflect a definition of desired future conditions that are based on key hydrologic processes. As these site-specific standards are developed, they will be incorporated into the Forest Plan.

## **Determination of the Cause of the Fish Kill Associated with the Meadow Creek Fire**

1. Continue efforts to limit the use and possible spills of fire suppression chemicals in streams or riparian zones.
2. In the event of a fish kill, collect large samples of water immediately.

## **K. RANGE MANAGEMENT**

1. Continue to take administrative actions to achieve desired forage utilization standards. Actions include: reducing the season of use, reducing livestock numbers where needed, resting of certain key use areas, closing pastures, and charging for excess use where appropriate.
2. Continue to monitor forage utilization to determine how well the Forest Plan Standard is being met.
3. Continue to support a cooperative research project with Pacific Northwest Experiment Station to determine level of meadow use by livestock and elk on portions of the Naches Ranger District.
4. Permits, when reissued, will include Forest Plan Standards relating to grazing and riparian values.

## **L. ROAD MANAGEMENT**

1. Clarification of management direction for the Forest Road Program is needed.
2. Additional yearly information needed.

## **M. INSECT AND DISEASE**

1. The evaluation is not conclusive; additional study and information is needed before action is taken.

## **N. FOREST FIRE PROTECTION**

### **Forest Fire Protection**

1. No additional action is necessary except to continue monitoring as scheduled.

### **Use of Prescribed Fire**

1. Many scientists and members of the public are becoming increasingly concerned about the ecological effects of the exclusion of fire from forest ecosystems. There is a need to gather additional specific information and propose alternative management practices.

## **O. AIR RESOURCE MANAGEMENT**

1. No additional action is necessary except to continue monitoring as scheduled.

## **P. MINERALS**

### **Mining Site Reclamation**

1. Additional monitoring should be conducted to ensure adequate reclamation is being completed.
2. The evaluation is not conclusive because 100 percent monitoring could not be done.

### **Mining Operating Plans**

1. Continue to request additional funding that allows 100 percent monitoring of all mineral-related activities.
2. The evaluation is not conclusive without 100 percent monitoring.
3. Based upon the monitoring that was completed, a Forest Plan adjustment is not necessary at this time.

## **Q. COMMUNITY EFFECTS AND RESOURCE BUDGETS**

### **Community Effects**

1. No additional action is necessary except to continue monitoring as scheduled.

### **Resource Budgets**

1. No additional action is necessary except to continue monitoring as scheduled.

## **R. GENERAL MONITORING OF STANDARDS AND GUIDELINES**

1. No additional action is necessary except to continue monitoring as scheduled. Recommendations, where indicated, have been made above in the appropriate monitoring items.



### **III. ACTION TAKEN ON 1992 RECOMMENDATIONS**

#### **RECREATION**

##### **Trails**

The Forest included requests for more trail maintenance funds in annual budgets and in out-year programs.

The Environmental Assessment for the Alpine Lakes Wilderness was completed and a Decision Notice signed in late December of 1993.

##### **Developed Recreation**

The Forest issued permits to concessionaire to operate seven developed sites in 1993. Additional campgrounds will be added to the program in 1994.

Vegetation Management Plans are underway for three campgrounds with significant root disease problems. Vegetation Management Plans need to be completed at several other sites.

Upgrading of recreation sites are underway. The Beehive Reservoir Rehabilitation on the Leavenworth is one of the best examples.

##### **Management of Dispersed Recreation Areas**

Monitoring resource conditions for dispersed recreation are underway on most Ranger Districts. The Naches Ranger District Environmental Assessment for the "Little Naches Recreation Management" is a good example of monitoring and plans for corrective action for both Dispersed and Developed recreation problems. Also, the Buck Meadows Integrated Resource Analysis (IRA) on the Cle Elum District and the Mission Creek (IRA) on the Leavenworth are examples of analysis directed, in part, at dispersed recreation problems.

#### **SOIL, WATER, AND FISHERIES**

##### **Maintenance of Long-Term Soil Productivity**

Tractor logged areas were monitored again this year. See the Soil Monitoring Item for results.

#### **ROAD MANAGEMENT**

Road management monitoring was one of the emphasis items for interdisciplinary monitoring during FY-1993. Results of this monitoring are contained in various sections of this monitoring Report.

Plans in Hand reviews were conducted for all 1993 projects. Plans in Hand reviews will continue in 1994.

## **IV. INDIVIDUAL MONITORING ITEMS**

### **A. RECREATION**

#### **Monitoring Item - RECREATION OPPORTUNITY SPECTRUM (ROS)**

The goal is to provide a well balanced array of recreation opportunities across the breadth of the Recreational Opportunities Spectrum (ROS) to meet the public demand for outdoor recreation. The monitoring question is:

1. Are Forest Management activities resulting in changes in ROS settings?  
Do end results match the experience levels expected in the plan?

During 1993, a variety of projects were reviewed to determine if management activities were done in conformance with ROS classes established in the Forest Plan. Projects were randomly selected for review by appropriate Forest Group Leaders and Resource Specialists. The following projects were reviewed:

- Beehive Reservoir Rehabilitation
- Mission Creek Integrated Resource Analysis (IRA)
- Mission Creek Riparian Improvement
- Devil's Gulch Trailhead
- Little Naches Dispersed Recreation - ORV Management
- Buck Meadows IRA
- Rock Creek Fish Habitat Improvement
- Natapoc Vegetation Management
- Mitchell Creek Watershed Restoration
- North Shore Road Closure
- Mud Creek Activities Analysis

The review of these projects included an examination of the environmental analysis prepared for each project, as well as the field inspection of the project area. These projects were all in various stages of completion, but no deviations were observed in either the planning or implementation of the appropriate ROS classes for the project areas. Work is being planned and accomplished in accordance with ROS Class designations.

#### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

#### **Monitoring Item - TRAILS**

The goal is to manage trail use, to provide recreation opportunity in a wide range of recreation settings, and in harmony with other resource management objectives. The monitoring questions include:

1. Are trails providing the variety of opportunities intended in the Forest Plan?
2. Is trail use occurring without impairment of other resource values?
3. Are trails with mixed users (e.g., horse/hiker, hiker/ORV) meeting the expectations for all intended users?

We are seeing some increases coming in special funding for backlog trail maintenance. At the same time, our normal trail maintenance funds are decreasing which is not helping to eliminate our total backlog. In 1993, trail maintenance focused mainly on logging-out trails as rapidly as possible. However, we were able to do some follow-up work in cleaning and repair of drainage structures, brush clearing, and some tread work. At the current level of trail maintenance funding, significant amounts of backlog maintenance needs are being deferred to the future. Constant public feedback tells us that getting trails logged-out is very important for access and ease of travel. Many users expect us to log-out the entire trail system each year.

From public comment, we are reasonably satisfied that the users are finding the variety of opportunities they are seeking. However, there is continued concern expressed by the public that more trails are needed, particularly outside of wilderness. There is increasing concern by various user groups that they are losing opportunities for their special interest. These are primarily horse users and mountain bike users. They feel that as hikers and horse users are displaced out of wilderness, there will be greater interest and competition for trails outside wilderness resulting in further restrictions on bike and horse use.

Recreation use on the trail system continues to result in some impacts on soil and water resources.

In 1993, the Forest Service continued the inspection and evaluation of the condition of trail bridges. Many bridges in the Wildernesses are nearing the end of their useful life, particularly bridges that receive pack and saddle stock use. Bridges have either been repaired, replaced, or removed. Opportunities to ford streams were provided where bridges were removed. Funding for trail construction is not adequate to replace all bridges that are in need of major repair or replacement.

There were 29.6 miles of trail constructed or reconstructed on the Forest in 1993. Of this total, 21.9 miles were completed through contributed funds, primarily Washington State Interagency Committee funds. Work was completed on the following trails: Chickamin, Mission/Devil's Gulch, Icicle Gorge, Rock Tie, Bygone Byways, and Silver Falls. There were two trail bridges reconstructed.

No major conflicts were documented as a result of mixed use on many trails. The Forest received seven letters from the public regarding trails, and three letters discussed use, conditions, and user conflicts. There also were a few verbal reports concerning horse/ORV/hiker conflict issues. Review of the letters, as well as employee field contacts with users, indicates there is no immediate need to enact further restrictions on motorized use of trails.

Monitoring over the past few years has shown that increased ORV use in roaded settings is resulting in unacceptable resource damage. Off-road use by four-wheel drive vehicles, three and four-wheel recreation vehicles, and motorbikes is causing damage to meadows and other vegetation. User-built trails are resulting in soil erosion. Several Ranger Districts have been planning area closures to correct this problem. In 1994, ORV management was implemented in the Beehive Reservoir area. An area closure was instituted to stop ORV and 4x4 travel off of roads and trails. Roads and trails determined to be in excess of user needs were rehabilitated and closed.

### **Recommendations and Actions Include:**

- a. Continue to request more trail maintenance funds to keep up with maintenance needs.
- b. Continue emphasis on our commitment to avoid trail impacts from other activities and restore any trail impacted by timber harvest activity. Use funds raised by the timber sales (KV funds) to do this work, where appropriate.
- c. We completed the recreation use Environmental Assessment for the Alpine Lakes Wilderness. The decision should help reduce resource impacts associated with the trail system in this Wilderness. Numbers of visitors will be limited by an entry quota permit system in three heavily used areas of the Alpine Lakes Wilderness. Trail impacts should be eased in these areas and trail maintenance efforts should be able to catch up with needed drainage and tread work.

### **Monitoring Item - MANAGEMENT OF DEVELOPED RECREATION FACILITIES**

The goal is to provide safe, well maintained, developed recreation facilities for the public commensurate with recreation demand. Monitoring questions include:

1. Are available developed recreation facilities meeting public demand?
2. Are developed recreation sites, areas, and facilities being adequately maintained to serve the public and protect resource values?

Visitor use at developed recreation sites continues to be very high. Heaviest use occurs on weekends, nearly filling all sites. There is an excess supply of developed sites on weekdays, early and late in the season. The expansion of sites planned in the Capital Investment Program, and the schedule in Forest Plan Appendix A, will meet anticipated increases in demand.

We are still receiving requests from the public for more amenities at some highly developed sites, such as more RV hook-ups and showers.



The backlog of heavy maintenance continues to grow even as our funding for maintenance is decreasing. Shifting emphasis to concessionaire-operated campgrounds will help reduce the maintenance backlog in campgrounds operated by concessions.

Monitoring of developed sites has revealed extensive problems with tree diseases, such as root rots, in most of our campgrounds. Vegetative Management Plans need to be completed for all developed sites.

### **Recommendations and Actions Include:**

- a. The Forest issued permits to a concessionaire to operate seven developed sites in 1993. This program went fairly well for the first year and will improve as the operators become more experienced with these sites. The benefits of the concessionaire program are as follows:
  - (1) Campgrounds can be open to the public at a full-service level with greatly reduced costs to the Forest.
  - (2) The maintenance work needed at these sites will be completed.
  - (3) Similar, or perhaps higher quality, service can be provided to the public.
  - (4) Resources are freed up for Forest Service personnel to concentrate work in other areas to provide high quality recreation experiences.
- b. Additional campgrounds will be added to the program in 1994.
- c. Vegetation management plans are being developed for three campgrounds with significant root disease problems: Tronsen, Goose Creek, and Kachess. Tronsen campground is closed to the public until removal of hazard trees can be completed.
- d. Vegetation Management Plans need to be completed at several other sites. Unsound trees are susceptible to blowdown in the wind, posing a hazard to campers. Plans need to be implemented as soon as possible to eliminate hazardous trees, stop the spread of tree diseases, and provide an acceptable recreation setting while rehabilitation of sites occurs. We will continue to upgrade recreation site quality and amenities available through the Capital Investment Program, partnerships, and special programs such as the President's recreation initiative.

### **Monitoring Item - MANAGEMENT OF DISPERSED RECREATION AREAS**

The goal is to provide opportunities for dispersed recreation activities where compatible with other resource management objectives. Monitoring questions include:

1. Are dispersed sites meeting public demand?

2. Is the recreation opportunity spectrum providing the expected variety for Forest users?

Dispersed recreation activities continue to be a high percentage of the total recreation use on the Forest. We have more than adequate supply of dispersed sites and areas in the roaded recreation setting across the Forest. If there is a shortage in this category, it is for areas adjacent to streams and lakes that are accessible by road. However, use in these areas is a major issue if we are to meet existing Forest Plan standards. The existing areas are heavily used and resources in these areas are experiencing significant recreation impacts.

The biggest shortage of recreation opportunities is in the semi-primitive motorized and non-motorized setting. There are user groups, such as Back Country Horsemen of Washington, who would like more areas and trails that are not as restrictive as Wilderness but are in a natural state and a semi-primitive environment.

Dispersed recreation sites are deteriorating. Problems such as soil erosion and compaction, vegetation loss, sanitation problems, and excessive litter are common on all Ranger Districts. Much of this use and related problems are within streamside riparian zones.

### **Recommendations and Actions Include:**

- a. Many dispersed recreation sites are in need of attention. These sites are often located near streams and other water sources. Inventories need to be completed on these sites and some rehabilitation plans completed and actions taken to mitigate adverse effects.
- b. New dispersed recreation sites are being developed along waterways, especially on the Naches and Cle Elum Ranger Districts. Management is needed to regulate these activities and direct them into places that are appropriate for them to occur.
- c. Activities that are occurring in concentrated areas of dispersed recreation use are in need of management. In some cases, Forest Orders are needed to control discharge of firearms, noise, forest fires, and other "good neighbor" matters.
- d. Dispersed sites need to be constantly monitored with respect to Forest Plan standards and guidelines.

Beginning in 1994, inventory of dispersed sites and areas will be significantly increased in the watershed analysis process. Detailed mapping and description of recreation use impacts in riparian areas will be completed. Out of this process will come recommendations for actions to rehabilitate impacted areas and to relocate use to areas more suitable for the type of activities occurring.

## **B. WILD, SCENIC, AND RECREATIONAL RIVERS**

### **Monitoring Item - WILD, SCENIC, AND RECREATIONAL RIVERS**

The goal is to retain the character and attributes of rivers recommended for Wild, Scenic, or Recreational designation. The monitoring question is:

1. Are resource management activities along recommended river corridors being conducted in a manner to provide protection at the appropriate level of classification?

During 1993, there were no projects implemented that had the potential to affect the classification of any river administratively recommended for designation under the Wild and Scenic Rivers Act.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

Beginning in 1994, we will be initiating the watershed assessments required by the April 13, 1994, Forest Plan Amendment. In this analysis process, we will be doing intensive inventory of resource conditions in riparian reserve allocations, including the corridors of rivers recommended for wild and scenic designation. Our knowledge of current conditions will be greatly increased. During a four to five year process, all of our river corridors will be inventoried. We also will be implementing restoration projects that will need careful scrutiny to assure we maintain the resource values and conditions on rivers recommended for designation.

## **C. SCENERY MANAGEMENT**

### **Monitoring Item - VISUAL RESOURCE OBJECTIVES**

The objective is to manage vegetation and facilities to provide views that are consistent with the stated visual quality objectives for each management area. The monitoring question is:

1. Do the cumulative effects of all resource activities within a viewshed meet the desired visual condition?

Forest landscape architects reviewed one or more projects per Ranger District in order to assess the potential cumulative effect of resource activities on scenery. The Environmental Assessments (EAs) were reviewed, supplemented by a field review of the area where the project was to occur. During the monitoring of these projects, the consideration of visual resource information was found to vary in EAs from very complete to incomplete. Deficiencies in the information were corrected using a checklist guideline for improving future projects.

The Blewett Pass Highway 97, White Pass Highway 12, and Shady Pass viewsheds were selected for summary analysis. Scenic resource analysis on these viewsheds indicated that the viewsheds vary from natural appearing to an altered condition. Further monitoring of these viewsheds was done this year. Blewett Pass viewshed is in a natural to slightly altered condition throughout most of the travel route except for the altered condition between Blewett Pass and Bonanza Campground.

Any additional vegetative changes along the roadside between Blewett Pass and Bonanza Campground should be kept to a minimum adjacent to the area of past vegetative treatment.

White Pass viewshed is in a natural to slightly altered condition throughout the travel route. Vegetative changes throughout the travel route blend well with the natural diversity of landscapes from the Forest boundary to White Pass. The scenic qualities of this viewshed are maintained at a very high level. Vegetation changes in the viewshed should continue to be monitored and enhanced to protect scenic qualities.

Shady Pass viewshed is in a slightly altered to altered condition. Currently a portion of the viewshed is being analyzed to find ways to improve the viewshed through rehabilitation of past management practices. Reducing visibility of existing roads, seeding roadside cuts and fill banks with vegetation, and blending new vegetation management with the old units are some techniques to improve visual quality. Disposing of slash piles and cleaning of old landings was done last year with success. Future vegetative management along the viewshed should be designed to soften the existing older units and to avoid adjacent units where openings do not improve scenic quality. Other vegetative treatments should improve or maintain scenic quality.

## **Recommendations and Actions Include:**

### **Blewett Pass Highway 97 Viewshed**

- a. To maintain scenic values, additional vegetative changes along the roadside from the top of Blewett Pass to Bonanza Campground should be kept to a minimum adjacent to areas of past vegetative treatments except to ensure public safety in campgrounds and adjacent to Highway 97.
- b. Continue working with the Department of Transportation and permittees to minimize signs, structures, and roadside improvements.

### **White Pass Viewshed**

- a. Expedite completion of the Tieton Dam Interpretive Stop—specifically the final design of parking area and interpretive signage.
- b. Continue to work with White Pass Ski Company to improve signs and landscaping.



- c. Continue monitoring Highway 12 to maintain the highest possible scenic quality by designing all activities to retain naturally appearing scenery.
- d. Continue to work in concert with the Washington State Department of Transportation toward safety, functional, and aesthetically pleasing structures in project planning.

### **Shady Pass Viewshed**

- a. Identify areas adjacent to the existing old cutting units which require scenic rehabilitation before any further vegetative treatment is planned.
- b. Find alternative solutions for cut bank restoration to reduce visual contrast of roads.
- c. Consult landscape architects to provide an analysis of rehabilitation needs.

## **Monitoring Item - STAND CHARACTER GOALS**

The objective is to manage vegetation so that the stand character (species and structural mix) is moving in the direction specified for each Visual Quality Objective (VQO). The monitoring question is:

1. Are related Standards and Guidelines being implemented, and do they achieve stated goals and objectives, particularly scenic character goals?

The desired future condition for scenery is a multi-story stand composition variety and diversity of large trees in groves, clumps, and/or scattered throughout the landscape. The high degree of naturalness is desirable.

In the last five years more Extended Shelterwood-type cutting practices and partial cutting concepts have been initiated throughout the viewsheds. This helps achieve a long-term forested environment with a more natural appearing landscape with scattered, groups, and individual large trees.

The trend of harvest practices in the last three years has been towards fewer openings (clearcutting) and heavily oriented towards partial cutting where trees are left to achieve scenic quality goals.

Another goal is to reduce the amount of contrast in the viewshed. The trend is that the viewsheds are recovering to more naturally appearing landscapes.

In addition, timber management has occurred on fewer acres since 1990, down from approximately 14,000 acres to about 5,000 acres annually in 1993.

An example of specific scenic goals to maintain and perpetuate large yellow bark ponderosa pines was monitored along the Blewett Highway No. 97 on the Diamond Timber Sale. Large clumps of trees were left and other trees thinned out to make room for the existing large trees to be seen from the highway. In another sale, a multi-level stand composition was left to provide scenic variety and reduce the visual contrast as viewed from Highway 97.

## **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **D. WILDERNESS**

### **Monitoring Item - RECREATION IMPACTS ON WILDERNESS RESOURCE**

The goal is to manage Wilderness to perpetuate wilderness character, natural ecological processes, and to provide recreation opportunities appropriate in Wilderness. The monitoring question is:

1. Is recreation visitor use resulting in change in the physical, biological, or social settings that approach the limits of acceptable change standards specified in the Forest Plan?

The Districts are monitoring areas frequently used by recreation visitors. Two types of monitoring occurred in 1993: initial inventory of sites and areas not previously monitored, and monitoring of resource condition to compare with previous inventory data for insight into any trends or changes in condition.

In 1993 we were able to complete only a minimum level of monitoring of recreation use impacts. We are continuing to put high emphasis on the inventory of sites not in our records, but we are also monitoring impacts in heavy-use areas. When monitoring data and observations indicate excessive impacts are occurring, actions are taken to correct the situation.

Several Districts reported that recreation impacts are occurring that are not considered in our Forest Plan standards and that revision of the indicators and standards may be needed. Standards for visitor encounters while traveling and campsite vegetation loss are difficult and expensive to monitor. Adjustments need to be made in these indicators and standards for them to be workable.

The Forest still needs to complete a Monitoring Guide for Wilderness.

## **Recommendations and Actions Include:**

- a. The initial site inventories need to be completed as soon as possible.
- b. During the next revision of the Forest Plan, we need to revisit the indicators and standards for the Forest Plan and Alpine Lakes Plan.
- c. The Forest should complete the Monitoring Guide to ensure consistency in monitoring between Forests and Districts managing the same Wildernesses.

In 1993, we instituted a mandatory non-regulatory permit system for the William O. Douglas Wilderness. This system will provide us with much more reliable

data on use patterns and user numbers. Non-compliance will have to be estimated, but we will have much more reliable information on destinations visited from specific trailheads and the length of stay of overnight users.

Also in 1993, the Forest Supervisor issued an Order to prohibit carts, wagons, or similar wheeled, human powered vehicles in all wildernesses on the Forest. The increase in use of various types of these vehicles and failure of this prohibition to be listed in the Code of Federal Regulations (CFR) prompted this action.

The Forest Supervisors signed the Decision Notice for the Alpine Lakes Recreation Use Environmental Assessment in 1993, which increases the size of the limited entry permit area for the Enchantments Area to include Eightmile Lake, the Mt. Stuart area, Lake Ingalls, and the Caroline Lakes area. This decision also established a new permit area, which includes Rachel and Rampart Lakes and the Rampart Ridge area west to the Cascade Crest. This decision also established additional regulations, including designated campsites at 34 locations and a campfire closure above 5,000 feet in elevation east of the Cascade Crest.

## **E. CULTURAL RESOURCES (Heritage Resources)**

### **Monitoring Item - CULTURAL (HERITAGE) AND HISTORICAL SITE PROTECTION**

The goal is, to the extent practical, to protect cultural and historical resources from vandalism, disturbance from project activities, and natural degradation. Monitoring questions include:

1. Are the National Historic Register characteristics of unevaluated and significant cultural resource properties being protected?
2. Are all reasonably locatable cultural resources being discovered during project area reconnaissance?

In most instances, the National Register characteristics of unevaluated and significant cultural properties are being protected. Unevaluated cultural properties are treated as though they were eligible for listing in the National Register of Historic Places until formal evaluations can be completed. In almost every case, final project plans, designs, and activities are completed to protect all cultural properties through avoidance. In those few instances where a property cannot be avoided, appropriate mitigation measures are adopted and implemented after regulatory consultations are completed. As documented in heritage compliance reports, specific cultural properties are inspected during or immediately following project activities to ensure mitigation measures are achieved and have the desired results.

For FY-1993, 47 proposed project areas were surveyed for the occurrence of cultural properties. A total of 26,093 acres were inventoried, which resulted in 10

new prehistoric sites and 15 new historic sites being recorded. This brings the Forest's total number of cultural properties to a little over 700. Almost half of the projects involved 51 cultural properties. During FY-1993, the proportion of these projects which involved timber sale planning was dramatically reversed from prior years. Almost three-quarters of the projects involved recreation and trails, special use permits, and lands, fisheries, and range projects.

Almost seven percent of the total number of recorded cultural properties on the Forest were revisited and monitored during FY-1993. Twenty projects were monitored during their operation to ensure cultural properties occurring near these activities were protected. One-half of these projects were active timber sales, the remainder involved recreation, special use permits, and range activities. Thirteen cultural sites were monitored during these activities, with one new prehistoric and one new historic site discovered during project monitoring. None of these monitored sites were affected by project activities.

All standing historic structures eligible or listed in the National Register have yearly maintenance reviews. These include all of the Forest's historic administrative buildings and lookouts, all of the picnic shelters, and a number of trail shelters constructed by the Civilian Conservation Corps. Thirty-one additional prehistoric and historic sites were monitored during FY-1993. These were properties not directly involved in project activities. Many historic structures are deteriorating rapidly from natural weathering and one is seriously threatened by potential catastrophic flood events. Prehistoric properties were found to be unchanged, on the whole (exceptions are noted below).

A contract was awarded to evaluate the effects of repeated illicit collecting and excavation damage to five rock shelters within Tumwater Canyon. A final report will be forthcoming, although preliminary evidence indicates these rock shelters contained at least four separate occupations dating back over 2,000 years ago. A contract was completed which surveyed the Cle Elum, Kachess, and Keechelus reservoir areas for cultural properties. Fifty-five cultural sites were recorded and twelve previously recorded sites were updated. This report documented that these properties are frequent targets for illegal collection activities and most are undergoing impacts from ORV use and/or the repeated rising and falling water levels within the reservoirs. Management options for controlling the ORV use are being examined during FY-1994 and law enforcement patrols have been increased. An illegally constructed trail was built, which passed alongside a pictograph site within Tumwater Canyon. The individual responsible was notified to cease such activities and the trail improvements were removed. Additional pictographs discovered during this episode were professionally recorded.

Cultural sites located along the Wenatchee River which are known to be undergoing erosion were revisited during FY-1993. No additional substantive damage was observed. Actions were taken to salvage significant archeological data that were



being destroyed by the river erosion. Samples were extracted from a cultural feature within a prehistoric housepit site which contained botanical remains; these will be studied and dated during FY-1994. The second and final year of the Osprey Camp "Passports in Time" program excavated threatened portions of five house pit features through the help of 35 citizen volunteers and a cooperative agreement with Eastern Washington University. This site had been substantially damaged by the Thanksgiving Weekend flood of 1990. Preliminary analysis indicates this site was occupied numerous times from about 1,200 years ago up to 380 years ago. A final report will be completed this year.

Cultural property protection is also achieved through educating the public. During FY-1993, a traveling Heritage Resources Trunk was constructed and used to teach "Rock Art Basics" to over 200 children. Educative and interpretive brochures were also displayed at the Eastern Washington State Fair, along with various media contacts. The Osprey Camp "Passports in Time" project educated over 35 volunteers in the value of protecting society's past. Forest Service history was also interpreted to about 200 people in the Bavarian village of Leavenworth. The Lake Chelan Boat interpretive program also covered the prehistory and mining history of the basin to thousands of tourists.

A number of projects did not meet Forest standards or legal requirements as there was no consideration of their potential affect on cultural properties. Therefore, regulatory compliance consultation was not completed. These included three special use permits, three range improvements, one fisheries improvement, one fire/recreation camp development, and all road closure projects. These 14 projects constitute about 23 percent of all projects undertaken or planned during FY-1993. These projects subsequently impacted four cultural properties. Additionally, one historic site was discovered after the inventory had been completed, but before the project was implemented.

There is a trend towards non-compliance with 23 percent of projects planned or implemented not complying with Federal statutes. Three of these projects impacted cultural properties during their implementation. These included a National Register-listed roadway which has a telephone cable buried down its center; a prehistoric site gouged by wing ditches dug during a road closure action; and a prehistoric site impacted by fence construction and probable future stock concentration on the site. It is unknown if other non-complying projects also impacted sites as these projects have not yet been inspected. Almost seven percent of the inspected/monitored cultural properties have not had their significant characteristics protected. The Forest Plan requires action to be taken if a threshold of variability exceeds ten percent.

The one historic site discovered during project design, but after the field inventory had been completed, is located in a low probability area for site occurrence according to the Forest's inventory strategy.

## **Recommendations and Actions Include:**

- a. The Forest standards cannot be changed as these reflect Federal legal compliance requirements. Thus, clarification of management direction appears necessary in order to have all projects in compliance. This was partially accomplished by a presentation to the Forest's Leadership Team which highlighted these oversights and repeated the need for project planners to be aware of compliance with national historic preservation laws. There may be a need for further training of project planners in national historic preservation laws.
- b. The natural degradation brought on by the Wenatchee River is under study, with further work (besides the data recovery accomplished in FY-1992 and 1993) being planned in FY-1994. This study will examine ways of stabilizing river banks and consider the urgency of further data recovery for the cultural sites involved.
- c. The Forest's inventory strategy appears to generally be working well where surface visibility is not totally obscured. However, the Forest's inventory strategy is now ten years old and is in need of further analysis and revision. This will be undertaken once the Forest's cultural property Geographic Information Systems data layer and data base is fully operational.

The problems with theft from sites were worked on by taking the Chelan County Sheriff Deputies on a tour of those sites vulnerable to theft, increased patrols by the Forest Service's own law enforcement personnel, and diligent prosecution of those caught breaking the law. Monitoring the frequency of occurrence of such thefts is ongoing.

## **Monitoring Item - CULTURAL (HERITAGE) AND HISTORICAL SITE REHABILITATION**

The goal is to rehabilitate damaged sites eligible for inclusion in the National Register of Historic Places. The monitoring question is:

1. For sites eligible for inclusion in the National Register of Historic Places, is appropriate stabilization or rehabilitation of damage being completed?

Maintenance needs of all standing structures eligible or listed in the National Register are reviewed annually. Several picnic shelters have a pressing need for substantial rehabilitation. One of these shelters is currently standing only because leaning supports have been added to the back wall of the structure. These supports are incompatible with the historic character of the building. Another shelter is in imminent danger of loss if a catastrophic flood event occurs because the nearby river bank has been so severely undercut. CCC-era administrative buildings have received minor, routine maintenance.

Work is continuing on a major stabilization and rehabilitation effort at the Salmon la Sac Cabin, a National Register-listed log building located on the Cle Elum River. A new roof was installed with in-kind materials and a contract was awarded to determine the structural needs of the building. These recommendations are being reviewed by the Regional Historic Preservation Team.

For those cultural properties undergoing natural degradation, work is continuing to either recover significant data these sites contain or to stabilize the river banks where possible.

Thus far, stop-gap measures seem to have been adequate to prevent the imminent collapse of one of the picnic shelters. The techniques are only a temporary solution and impose a non-historic element to the structure. The Forest has requested capital investment funds to undertake the heavy maintenance these structures need, but it is unknown when, if ever, these funds will be allocated.

The Osprey Camp has had adequate data recovery completed to mitigate for the loss caused by the Wenatchee River erosion. Further work is being considered for several other sites affected by erosion along the river. Monitoring stakes have been installed at most of these sites in order to measure accurate rates of erosion.

### **Recommendations and Actions Include:**

- a. For the moment, no further action is needed. Annual monitoring of endangered structures needs to be continued so that emergency measures could be undertaken if needed. Annual monitoring of eroding sites also needs to continue to determine if sudden substantive erosion occurs and immediate action is needed.

## **F. COORDINATION OF FOREST PROGRAMS WITH INDIAN TRIBES**

### **Monitoring Item - COORDINATION AND COMMUNICATION OF FOREST PROGRAMS WITH INDIAN TRIBES**

The goal is to coordinate with appropriate Tribal representatives for all projects in which Indians may have concerns. Monitoring questions include:

1. Are American Indian rights being protected on National Forest lands?
2. Are projects with activities, or areas of concern to Indians, being coordinated with appropriate Tribal representatives?

In addition to the involvement in projects undergoing environmental analysis in 1993, the Yakama Nation also cooperated in other areas of concern to the Tribe.

The highlight of this cooperative effort resulted in the Memorandum of Understanding (MOU) between the Yakama Indian Nation and the Forest Service. The



signing of the MOU and other cooperative efforts resulted in the Yakama Indian Nation withdrawing their Forest Plan Appeal.

Representatives of the Yakama Nation are involved in watershed analysis on the Forest. During this analysis, watersheds are being delineated for individual study in order to define the existing conditions and to develop standards, where needed, to move the watersheds toward the Desired Future Condition.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue cooperation and monitoring as scheduled.

## **G. SENSITIVE PLANTS, BIODIVERSITY, AND OLD GROWTH**

### **Monitoring Item - MAINTENANCE OF SENSITIVE PLANT POPULATIONS**

The goal is to provide appropriate habitat to maintain viable populations or enhance populations of all threatened, endangered, and sensitive plant species. The monitoring question is:

1. Are sensitive plant species populations being maintained or increasing?

A number of sensitive plant populations were monitored and/or studied in 1993, including: long-sepaled globemallow, Seely's silene, Wenatchee larkspur, clustered lady's slipper, pine broomrape, and showy stickseed. New populations of long-sepaled globemallow (800 acres) and Seely's silene (100 acres) were inventoried during the 1993 field season. An extension of a previously known population of showy stickseed was located during the 1993 field season with approximately 10 acres of suitable habitat surveyed. Four new populations of pine broomrape were located and approximately 800 acres of suitable habitat were inventoried. Ten populations or subpopulations of clustered lady's slipper were located and approximately 800 acres of suitable habitat were inventoried in 1993. Population condition monitoring was carried out at three locations for Wenatchee larkspur. Sampling has not been done long enough on these populations to draw any conclusions about maintaining or increasing populations. Plots were established for clustered lady's slipper this past year and information will be gathered from these plots in the future. Pollination studies are being conducted on both clustered lady's slipper and pine broomrape, while propagation tests are planned for showy stickseed.

Essentially all NEPA documents address sensitive plants and Biological Evaluations are completed for all ground disturbing activities to assure that sensitive plants are protected.



## **Recommendations and Actions Include:**

- a. Continue to monitor existing plots and to standardize methodology.

## **Monitoring Item - BIODIVERSITY**

The goal is to maintain native and desirable introduced or historic plant and animal species and communities. Provide all seral stages of all plant associations in a distribution and abundance to assure species diversity and viability. A desired future condition is to establish the local needs of management indicator species, rare species, and the proportion of seral stages that allows for natural diversity. Monitoring questions include:

1. Is the trend of biological diversity moving as estimated?
2. Is the model for biological diversity being used on project and sub-drainage evaluations?

The concept of biodiversity is the foundation of current land management philosophy in the Forest Service. Several initiatives have placed a major emphasis on biodiversity preservation. These include ecosystem management, use of native species for restoration and rehabilitation, and watershed assessment and restoration. These initiatives have caused Forest Service managers to address issues on a landscape scale, to consider use of native plants in all revegetation activities, and to relate current and historic conditions in the Watershed Assessment process. Maintaining the species and processes within a natural range on a watershed level is a major step toward addressing biodiversity concerns in those watersheds.

## **Recommendations and Actions Include:**

- a. New monitoring items for biodiversity will need to be developed consistent with the April 13, 1994, amendment to the Wenatchee Forest Plan.

## **Monitoring Item - OLD GROWTH ECOSYSTEMS**

The goal is to maintain old growth forest ecosystems as needed for plant habitat, esthetics, and biological diversity while still providing appropriate levels of timber for commodity use. The monitoring question is:

1. Is old growth acreage being retained at Forest Plan rates?

The old growth habitat remained essentially the same in 1991/1992 and 1993 because there was no old growth habitat included in timber sales sold in those years. Some dead, blowdown, and individual old growth trees which presented safety hazards were harvested in association with road and campground construc-

tion or reconstruction. It was estimated that these harvests occurred on approximately 764 acres as light, partial removal cuts. Beyond this, the four-year timber harvest amount (1990 - 1993) is much less than estimated in the Forest Plan due to the adoption of Habitat Conservation Areas and court injunctions imposed on harvesting in Spotted Owl Habitat.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **H. WILDLIFE**

### **Management Indicator Species Habitat**

Management Indicator Species are plant or animal species whose population characteristics can be used to evaluate the effects of land and resource management practices on the habitats they use.

### **Monitoring Item - OLD GROWTH AND MATURE HABITAT**

#### **INDICATORS: spotted owl, pileated woodpecker, marten, and three-toed woodpecker**

The goal of the indicator species program is to provide habitat to maintain viable populations of all Old Growth and Mature habitat vertebrate species on the Forest. Monitoring questions for these species include:

1. Are Forest Plan allocated sites being maintained?
2. Are established sites being used by indicator species?

### **Northern Spotted Owl**

Owl populations were inventoried on 105,675 acres of suitable habitat in 1993 compared with 252,378 acres in 1992. The acres of habitat inventoried decreased in 1993 because of reduced need associated with a significant decline in the timber harvest program.

Spotted owls had their worst year for reproduction on the Forest in the past three years (the worst in eight years regionally) during 1993. Still, the Wenatchee National Forest produced 50 percent of the nests with young in Region 6.

## NORTHERN SPOTTED OWL ACTIVITIES

Fiscal Year	Pairs	Resident Singles	Other Singles	Fledged Owls	Owls Banded	Owls with Radio Transmitters
1989	55	NA	72	NA	50	00
1990	116	6	81	NA	200	18
1991	146	24	60	98	95	29
1992	164	20	67	207	215	74
1993	174	26	69	38	58	16

NA = Not Available

The known owl pairs on the Forest continues to increase as additional areas are surveyed intensively. Adult owls in pairs or singles seemed to have changed little.

Due to new research and a refinement of owl habitat information, a 1991 remapping of suitable spotted owl habitat resulted in an increase from 521,000 to 562,715 acres of total habitat on the Forest. The suitable habitat for spotted owls remained the same from 1991 through 1993 because no suitable spotted owl habitat was included in timber sales. At this time, the Forest is logging suitable spotted owl habitat at a slower rate than predicted in the Forest Plan.

The number of owls banded has decreased as a result of low reproduction in 1993. The number of birds with transmitters has decreased, primarily due to reduction of funds and low reproduction rates. A great deal of new information was gathered resulting from identifying birds that had bands applied from previous years. It will likely be another year before the banding data can be analyzed for use in management.

### Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

### Pileated Woodpecker, Northern Three-toed Woodpecker, and Marten

Spotted owls, pileated woodpeckers, northern three-toed woodpecker, and marten are all indicators for mature or old growth habitat and are all affected by changes in this habitat.

## PILEATED WOODPECKER, NORTHERN THREE-TOED WOODPECKER, AND MARTEN SIGHTINGS

Fiscal Year	Pileated Woodpecker	Northern Three Toed Woodpecker	Marten
1990	125	9	14
1991	102	9	69
1992	55	5	35
1993	43	5	11

There is a decrease in the number of indicators sighted. This is mainly due to reduced funding in wildlife and other activities that reduces the number of resource projects being assessed.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - MOUNTAIN GOAT HABITAT**

The goal is to maintain or increase populations and to provide animals for recreation enjoyment. The concern is to maintain or increase sub-populations.

Improvements and inventory work were completed with a number of partners in 1993. Additional monitoring work needs to be completed on this species and its habitat to verify the Forest is maintaining this species in viable numbers.

#### **MOUNTAIN GOAT INFORMATION**

Fiscal Year	Estimated Population	Acres Inventoried	Acres Improved	Structures Improved
1990	1,600	0	0	0
1991	1,600	5,000	0	0
1992	1,600	2,550	150	0
1993	1,600	36,650	150	100

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - DEER AND ELK HABITAT (Big Game Indicator Species)**

The goal is to maintain habitat capability to support populations identified in the Forest Plan and provide animals for recreation enjoyment. Monitoring questions include:

1. Are populations being maintained as predicted?
2. Is habitat capability being maintained?

Estimated numbers of mule deer using Forest lands are 25,000 and Rocky Mountain elk are 12,000, which are the same numbers estimated at the beginning of the planning period. There are concerns that the Forest may have too many elk.



Without good information on elk populations and habitat, the concerns about this species will continue.

The Forest has a partnership to collect information on cattle and elk use of meadows.

Rocky Mountain Elk Foundation (RMEF) participated in some improvement projects on the Forest this year. The Forest partnered with BLM and RMEF to complete an audience analysis for the elk interpretive center (Heart K Ranch Education and Information Center).

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - PRIMARY CAVITY EXCAVATORS (Indicator Species for dead and defective trees)**

The goal is to provide habitat to maintain viable populations. Maintain number, size, and distribution of trees and snags to meet habitat capability objectives by management area. Monitoring questions include:

1. Are primary cavity excavator habitat and replacement trees being left in the proper numbers, sizes, and distribution?
2. Is the habitat being utilized as expected?
3. Are down trees being provided?

Cle Elum Ranger District stopped snag cutting for firewood in 1993. This may have resulted in maintaining about 100,000 acres of habitat for species requiring snags. The other five Ranger Districts continued to allow snag cutting for firewood using the wood cutting permits for control.

The Wenatchee Forest has a partnership with Central Washington University and the Pacific Northwest Research Lab in Wenatchee to develop a method of inventorying habitat that results in a good predictor of Primary Cavity Excavators populations. The results of this two-year study should be finalized in FY-1994.

Each year Forest managers have a better understanding of the habitat and needs of this group of species. The Forest drafted a proposal for a study on snag decay rates in 1993. It was not funded. Without this information it will be difficult to predict management for snags.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **Proposed, Endangered, and Threatened Species**

Endangered and threatened wildlife species found on the Forest are the bald eagle, peregrine falcon, grizzly bear, gray wolf, northern spotted owl, and marbled murrelet. All reported sightings of threatened and endangered species were documented and, except for the bald eagle sightings, were checked to determine the accuracy of the report. As planned, all sightings were reported to the Washington State Department of Wildlife in a timely manner in the established format.

The status of the northern spotted owl has been discussed in this report under the indicator species section above.

### **Monitoring Item - BALD EAGLE HABITAT (T.E.& S Wildlife)**

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Monitoring questions include:

1. Are existing nest sites producing young as anticipated?
2. Are nest, roost, and perch sites being maintained?

A second goal for bald eagle habitat is to meet recovery levels established in the Pacific States Bald Eagle Recovery Plan. There are discussions about delisting the bald eagle in the State of Washington. The Wenatchee National Forest is within one of the areas east of the Cascade Mountains that has not met the recovery goals. There were five pairs of adult eagles which produced four young from four known nests on the Forest in 1993. The estimated population is now 14 eagles, which is an increase over past years. It becomes apparent that eagle populations are expanding in this area. If the trends continue recovery goals could be met in four to five years.

There are bald eagles showing up in good numbers on the Forest in the winter. The Naches Ranger District led the December surveys for the Yakima area in 1993.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - PEREGRINE FALCON (T.E.& S Wildlife)**

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Monitoring questions include:

1. Are recovery sites being maintained?
2. Are sites occupied?

The Naches Ranger District has been participating in recovery of the peregrine falcon for the last four years. The partners working with the Forest Service are the Washington State Department of Wildlife, Boise Cascade Corporation, Washington State Chapter of the National Audubon Society, U.S. Fish and Wildlife Service, and the Peregrine Fund, Inc. The objective of this partnership is to re-establish peregrine falcons in the wild.

The plan for releases on Naches Ranger District are complete and plans are being made for releases beginning in 1994 on the Leavenworth Ranger District continuing for three years.

### **PEREGRINE FALCON**

Fiscal Year	Number Hacked	Number Nests	Confirmed Young	Unconfirmed Sightings	Sightings
1988	0	0	0	0	1
1989	5	0	0	0	0
1990	5	0	0	1	1
1991	11	0	0	2	0
1992	6	1	3	8	2
1993	5	1	2	2	0

The population of peregrine falcons is increasing on the Forest and is expected to continue to increase for a number of years.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - GRIZZLY BEAR (Threatened Species)**

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. The monitoring question is:

1. Are guidelines for the North Cascade Grizzly Bear Recovery Area being implemented as they become established?

Approximately 65 percent of the Forest has been designated as a recovery area. The Recovery Plan should be finished in 1994.

It appears that the population of grizzly bears may be increasing with no confirmed sightings and 12 unconfirmed sightings in 1993. The population may have been at the level shown for many years and we are just now understanding and gathering information to justify the estimates.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - GRAY WOLF HABITAT (Endangered Species)**

The goal is to manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. The monitoring question is:

1. Is habitat capability on an increasing trend?

Wenatchee Forest biologists are participating on interagency teams considering management of gray wolves in the State of Washington. The Lake Wenatchee Ranger District is taking the lead to develop a conservation plan for wolves in the Pacific Northwest Region. The Wenatchee, Mt. Baker-Snoqualmie, and Okanogan National Forests are working together to monitor wolves.

There were no confirmed sightings and 41 unconfirmed sightings in 1993 compared to 4 confirmed and 32 unconfirmed in 1992.

Wolves are elusive animals by nature. Even though we assume populations are increasing, we have been unsuccessful in capturing one and attaching a radio transmitter. Plans for inventory work by the Forest Service, Fish and Wildlife Service, and Washington Department of Fish and Wildlife are currently in progress.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - MARBLED MURRELET**

Until 1992 the Forest Service did not know that a portion of the Wenatchee Forest contained potential nesting habitat for marbled murrelet. Therefore, no surveys, calculations, or assessments of projects had been completed.

Assessments and consultation began on this species in 1993. Formal consultation has been completed on one timber sale and other projects are being reviewed.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.



## **Monitoring Item - HABITAT FOR SPECIES IDENTIFIED AS CANDIDATES FOR THREATENED STATUS**

Species proposed for listing as threatened or endangered are identified as “sensitive” species within the Forest Plan. Sensitive species include bighorn sheep, Townsend’s big-eared bat, Canadian lynx, California wolverine, ferruginous hawk, Swainson’s hawk, and long-billed curlew. The common loon, harlequin duck, red legged frog, and the Western pond turtle are Regionally sensitive species that have recently been located on the Forest. The State of Washington has identified some rare species, and the Fish and Wildlife Service has some species being considered for Federal listing. Region Six of the Forest Service is reviewing its sensitive species list and it is likely that the list for the Wenatchee Forest could be expanded. This may begin the process of evaluating projects and gathering information to make decisions on new listing for threatened or endangered species and identifying viable populations. At this time about 70 animals, 3 fish, and 50 plants are candidates for this category.

The goal is to enhance habitat to prevent the need for listing species as Federally Threatened or Endangered. The monitoring question is:

1. Is habitat capability on an increasing trend?

### **Bighorn Sheep**

Few forest management projects affected bighorn sheep populations or habitat. It is thought that disease from domestic sheep and low numbers of bighorns seem to keep the populations from increasing. Presently, the bighorn herds interact with domestic sheep, are small in numbers, and animals from the various areas do not interact sufficiently to maintain genetic viability. A plan is needed to provide for viable populations of this species.

A study plan to investigate diseases has been developed by the Forest and the Washington Department of Wildlife. If funding is available, then this study will be carried out for the next two to three years.

## BIGHORN SHEEP

Fiscal Year	Population Estimate	Acres Inventoried	Structures Improved
Swakane Herd			
1957	18*		
1969	9*		
1983	1*		
1984	40		
1991	9	0	0
1992	19	6,000	4
1993	18	600	4
Clockum Herd			
19??	Introductions		
1991	1	0	0
1992	14*	0	0
1993	14*	0	0
Clemens Mountain Herd			
19??	Introductions		
1991	NA	0	0
1992	50	0	0
1993	50	0	0

\* Population Introduction Numbers.

NA—Not Available

In 1993, a population history has been assembled for the Swakane Canyon Area. This information has been incorporated into the above table.

### Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

### Townsend's Big-Eared Bat

The only known site on the Wenatchee Forest inhabited by Townsend's big-eared bats is Boulder Cave. Surveys were completed on January 8, 1992, and February 20, 1992, at Boulder Cave. There are railroad tunnels and irrigation tunnels on the Forest that could be occupied by big-eared bats.

## TOWNSEND'S BIG-EARED BAT

Fiscal Year	Population Estimate	Acres Inventoried	Structures Improved
1928	Hundreds*	3	0
1930	Hundreds	3	0
1936	100-200*	3	0
1937	<75	3	0
1962	0	3	0
1988	2	3	0
1989	32	3	0
1990	32	3	0
1991	34	6	8
1992	57	3	0
1993	50	3	12

\* Reproduction Present

In 1993, some citizens described caves near Cashmere and Leavenworth where bats have been seen in the past. These will be inventoried.

A study has been developed to locate the reproductive site for the bats at Boulder Cave in 1994. The District is making arrangements to prepare a plan for the bats in 1994.

The Forest has been putting out bat boxes as shelter for other bat species. In 1993, 30 of these structures were installed.

### Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

### Canadian Lynx and California Wolverine

The Forest participated in a State group to identify habitat requirements and make recommendations on lynx. This group visited the Forest and identified suitable habitat on the Forest. The Forest is developing guidelines for management and maps of lynx habitat.

During 1993, the State of Washington listed the lynx as a threatened species.

Mapping of habitat on the Forest shows there are very few lodgepole pine stands (identified as habitat in other areas) where lynx are known to exist. A map of dense tree canopies and high elevation lodgepole pine shows there is considerable potential habitat on the Forest. Sightings on the Forest indicate there are lynx present in habitats other than lodgepole pine types.

The Lake Wenatchee Ranger District began working on a conservation plan for wolverine. Survey protocol was developed and distributed to the other Districts.

### **Recommendations and Actions Include:**

- a. It is recommended information be gathered on the use by lynx of forest types other than lodgepole pine.

### **Ferruginous Hawk**

The Chelan Ranger District has the lead for developing a Conservation Plan to be used regionally for the hawk. No funding is available for this work and, as such, no products were produced in 1993.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Common Loon**

Very little work was completed on common loons in 1993. Loons were consistently seen at Lucerne on Lake Chelan and action was taken on Lake Wenatchee to control boat activities to protect loons and eagles there. Three sites with broods were located on Forest this year. Structures placed in 1992 and 1993 are being utilized by many species.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Harlequin Duck**

In 1993, there were several sightings of this species. Two nests were located and two broods of young were seen. The previous year's data was loaded into the Forest data base. The Forest is working on standards and guidelines for this species.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Red-legged Frog and the Western Pond Turtle**

The literature does not show the Western pond turtle in the vicinity of the Wenatchee National Forest. But the habitat as described exists. Further inventories are needed.

Some additional inventories were completed in 1993 at sites where red-legged frogs had been found in the past. No red-legged frogs were seen during these inventories. This would indicate the need for additional surveys. Review of stream



survey data from 1993 may shed some more light on the abundance and distribution of this species.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Western Gray Squirrel**

In 1993, this species was listed by the State of Washington as Threatened. Old records show there were several historic sightings on the old Tieton Ranger District. Gray squirrels have been reported using maple and walnut trees near commercial orchards in Purteman Gulch and Antilon Lake near the Lake Chelan Ranger District. The Forest needs to verify the presence of this species and begin gathering additional data.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **OTHER WILDLIFE**

### **Monitoring Item - HAWK AND OWL NEST SITES**

The goal is to maintain viable populations and provide animals for recreation enjoyment. The monitoring question is:

1. Are nest sites being protected during implementation of habitat disturbing activity?

To meet the requirement of the Migratory Species Treaty Act, Forest managers are required to protect nest sites of hawks and owls. There has been no land allocation for these sites, but by using inventory data, we will protect roost and nest sites as needed to facilitate future nesting.

A second program goal is to manage hawk and owl nest sites to provide recreation opportunities for viewing wildlife.

The number of nests being protected has decreased in 1993 due to one, or all, of the following:

1. Poor reproduction by hawks and owls—so few nests were found.
2. Few acres were logged near nests.
3. Nests are being inventoried before project implementation and conflicts are avoided.

## **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **I. TIMBER OFFERED, HARVESTED, AND RELATED SILVICULTURAL ACTIVITIES**

### **Monitoring Item - TIMBER OFFERED (Allowable Sale Quantity [ASQ] and Timber Sale Program Quantity [TSPQ])**

The goal is to achieve planned and assumed volumes of timber sold annually and for the planning period in ASQ and TSPQ. Monitoring questions include:

1. Is the Forest offering the cubic foot volume (board feet in first decade) of chargeable timber established by the plan ASQ?
2. Is the Forest offering the cubic foot volume (board feet in first decade) of non-chargeable timber necessary to achieve the estimated TSPQ?

In 1993 there were 20.2 million board feet of timber sold. There were several reasons for not selling the volume at the indicated Forest Plan level. First, the adoption of the Interagency Scientific Committee Report by the Secretary of Agriculture, in October of 1990, requiring Habitat Conservation Areas (HCAs) for the northern spotted owl, resulted in a reduction in available timber lands. The Record of Decision for the Final Environmental Impact Statement on Management for the Northern Spotted Owl indicates a 54 million board feet ASQ for the Forest with the adoption of the Habitat Conservation Areas. In addition, a Federal Court injunction banned the sale of timber from suitable spotted owl habitat until after completion of a supplement to the Spotted Owl EIS. The April 13, 1994, amendment to the Wenatchee Forest Plan estimates a harvest level of 24 million board feet for the Forest.

## **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - TIMBER HARVEST UNITS (Size, Shape, and Location)**

The goal is to manage vegetation cover to meet direction on size of openings created by National Forest timber harvest. The monitoring question is:

1. Are the Forest Plan Standard and Guidelines regarding the size and dispersal of openings and condition of adjacent vegetation (e.g., height of trees in adjacent areas) being appropriately implemented?

All timber harvest activities on National Forest land met the direction on size of created openings.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - TIMBER HARVEST**

The goal is to ensure that regeneration harvests are not prescribed for areas where average annual growth has not generally reached culmination of mean annual increment. Monitoring questions include:

1. Are stands being harvested at an age and condition that produces the expected growth measured on an average annual cubic foot basis?
2. Is the amount of volume removed consistent with amounts sold?

In general, all stands scheduled for regeneration harvest were at or beyond culmination of mean annual increment.

58.4 million board feet of timber was harvested on 4,448 acres of the Wenatchee Forest this past year.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - SILVICULTURAL PRACTICES**

The goal is to ensure that silvicultural prescriptions are appropriate, effective, and consistent with resource objectives for each management area. Monitoring questions include:

1. How many acres of each planned silvicultural practice have been accomplished?
2. Have silvicultural prescriptions met objectives set for each management area?
3. Are managed stands growing at the rates estimated by Forest Plan yield models?

Timber sales monitored in 1993 for silvicultural practices included some in the preparation stage, some in the sold but not cut stage, and some in the reforestation stage. Monitoring for growth and yield is difficult on recent sales. However, some estimates of expected yield were made on sales monitored to show a trend. Estimated results are that of 18 areas monitored, 7 are estimated to result in less yield

and future growth than expected, 3 are higher than modeled, and 8 should produce as expected.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - REFORESTATION**

The goal is to minimize the amount of time between the removal of existing trees and reforestation with desired species. Monitoring questions include:

1. Is adequate tree stocking for each management area achieved within the time frame established with the desired silvicultural method?
2. Have adequate numbers of trees of desired species been established to realize optimum growth for the management area?

In FY-1993, an estimated 1.2 million tree seedlings were planted to reforest 4,490 acres. The first-year plantation survival from 1993 reforestation was approximately 84 percent. This is lower than 1992 due primarily to some poor quality trees from the nurseries.

The Forest is monitoring the average elapsed time from harvest to reforestation. The average time is less than three years. Planting of some individual units is delayed due to the limited number of burning days allowed for harvest slash due to air quality concerns.

In addition, 3,199 acres of timber stand improvement (TSI) work was accomplished. The majority of the improvements consisted of thinning to remove excess trees, with some fertilization and pruning.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - LANDS NOT SUITABLE FOR TIMBER MANAGEMENT**

The goal is to verify that technology and/or other information has not been developed to justify reclassifying lands from a "not suitable" status to "suited for timber management," or vice versa. Monitoring questions include:

1. Have the lands that were identified in the Plan as not being suitable for timber management now become suitable for timber management?



2. Is the suitable/not suitable land classification accurate as identified in the Forest Plan data base?

Suitability of forested land to sustain commercial crops of industrial wood is being field verified within new timber sale planning areas. The primary consideration is the ability of a site to be reforested within five years. Ranger Districts will update suitable acre inventories on the Geographic Information System as the program becomes operational. Anticipated Forest Plan amendments will also affect the suitable data base.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **J. SOIL, WATER, FISHERIES, AND RELATED WATERSHED MANAGEMENT**

### **Monitoring Item - MAINTENANCE OF LONG-TERM SOIL PRODUCTIVITY**

The goal is to manage the soil resources by implementing management practices that maintain or enhance productive properties. The monitoring question is:

1. Is soil productivity being protected?

In 1993, seven timber sale units on five Ranger Districts were monitored to evaluate for compliance with Forest Plan soil resource standards for total detrimental soil disturbance. Monitoring procedures used were also designed to calibrate and compare results of the spade penetration method used in 1991 with the core sample method used in 1992 and 1993. Units selected for sampling were considered to have the best examples of ground-based timber harvest practices because they appeared to have the least amount of disturbance.

Timber harvest units were monitored for total detrimental disturbance which includes: detrimental compaction, displacement, puddling, and severely burned. Forest Plan and Regional standards state that total detrimental soil disturbance should not exceed 20 percent of the area. Soil samples were analyzed for compaction based on reduction of bulk density of greater than 20 percent for ash soils and 15 percent for non-ash soils. The other parameters were visually assessed.

Results indicated that none of the units monitored were within Forest Plan soil standards. All of the units exceeded 30 percent, four units exceeded 40 percent, and one unit exceeded 50 percent total detrimental disturbance. Compaction was the most significant disturbance factor and accounted for approximately 57-100 percent of the total disturbance on all of the units. Displacement was greater on

units logged with a feller/buncher accounting for as much as 43 percent of the total disturbance. Skid roads which were calculated into compaction accounted for up to 25 percent of the total disturbance and 50 percent of compaction. “Severely burned” and “puddling” were not significant factors at the time of monitoring.

A comparison of the soil core sample and spade penetration methods was done on four of the units. Comparison of the results indicates that the mean values calculated for the spade penetration method for three of the units were within the 90 percent confidence interval of the corresponding mean values of the core sample method.

Samples of undisturbed soils on the Cle Elum unit were compacted as much as 17 percent over Soil Conservation Service estimated bulk density for the soil type. This is thought to be due to historic grazing and logging. Recent activity increased compaction by 14 percent. Naches District tested soil compaction on skid trails on the Crow No. 4 harvest unit and found that only 40 percent of the samples were compacted as determined by the bulk density test. However, the total area in skid trails and landings still exceeded Forest Plan standards.

Forest Plan and Regional standards for detrimental soil disturbance could not be met in a well designed and executed timber harvest when combined mechanical harvest methods were utilized on soils susceptible to compaction. Visual assessment of ground cover, soil displacement, and skid trails is not an adequate indicator of the affect of logging practices on soil compaction. Quantitative assessment of the soil’s physical parameters is needed. The spade penetration method may be used when a large number of units are to be surveyed and less rigorous results are required.

## **Recommendations and Actions Include:**

- a. Discontinue the practice of combined timber logging and mechanical (tractor) piling on ash/pumice and other susceptible fine texture soils.
- b. To the extent practical, utilize timber sale contract provisions to designate and use the same skid trails on multi-entry activities to minimize compaction and other soil disturbance.
- c. Continue monitoring tractor logged and tractor logged/piled areas to see if they are within the Forest Plan Standards.
- d. Restore sites that do not meet Forest Plan Standards and Guidelines by appropriate methods and techniques including ripping and seeding skid trails and landings and by avoiding practices that will cause further degradation.
- e. In addition to bulk density, point sampling of soil textures, organic duff, nutrient, and organic matter content should be considered. Monitor surface erosion parameters, such as ground cover, and the effectiveness of drainage features and road closures.
- f. Better records are needed to show site condition during activities and to document operations. Assemble and integrate knowledge of past activities on each site and incorporate it into project analysis.

## **Monitoring Item - FISH/RIPARIAN STANDARD AND GUIDELINE IMPLEMENTATION**

1. Are standards, guidelines, and related BMPs for fish habitat and riparian areas as defined in the Forest Plan being applied in the design and execution of timber sales?
2. Furthermore, would these timber sales also comply with direction in the President's Plan for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl.

In anticipation of completion of the plan for management of federal lands within the range of the northern spotted owl, the Regional Office asked the National Forests to complete a review of timber sales in various stages of preparation. The question to be asked was whether these sales would meet the draft standards and guidelines then being proposed. The Forest elected to add an additional question to the review—that being whether these same sales met current Forest Plan standards and guidelines.

The following is the list of timber sales that were reviewed. All 19 had an office review. Of that number, 13 had a field review. Modifications of the project package were made for five sales. Three of these five sales involved modifications needed to bring the sales into compliance with what was then a draft proposed listing of standards and guidelines for Forest within the range of the northern spotted owl.

Two of the five sales involved major modifications which, if not corrected, would probably have resulted in a violation of Forest Plan standards for soil displacement, erosion, and water quality. Modifications included deletion of some units, changes in unit boundary, or change in road design or location.

SALE NAME	RANGER DISTRICT	REVIEW	COMMENTS
Bee Hive Thin	Leavenworth	Office/Field	OK
Carton	Cle Elum	Office/Field	Major modifications made
FC Salvage	Naches	Office	OK
Hause	Naches	Office/Field	OK
High Pile	Naches	Office	Recommendations made
High Spud	Entiat	Office/Field	Recommendations made
Moonbeam	Cle Elum	Office	OK
Musky Salvage	Cle Elum	Office/Field	OK
Pole Buck	Cle Elum	Office	OK
Rainbow	Leavenworth	Office/Field	Major modifications made
Shady Lake	Entiat	Office/Field	Modifications made
Skyrocket II	Leavenworth	Office/Field	OK
Smokey	Naches	Office/Field	Modifications made
T-28 Salvage	Entiat	Office/Field	OK
Thin Johnson	Entiat	Office/Field	Recommendations for roads
Timothy	Naches	Office	OK
Tiny Timber	Chelan	Office	OK
Tip	Leavenworth	Office/Field	OK
Tip Top	Leavenworth	Office/Field	Modifications made

The Review Team paid particular attention to management of riparian zones and transportation system issues. In most cases, topographical factors had been taken into consideration in layout of cutting unit boundaries. Rather than using a set width of leave strip with no timber harvest, a unit boundary was tied to a natural slope break which could then act to catch any off-site movement of sediment. In several cases, however, the Review Team felt that insufficient leave strips had been left when designing prescribing burns for slash disposal purposes. Road recommendations included additional erosion control features and use restrictions.

### **Recommendations and Actions Include:**

- a. The Review Team felt that the approach used in this review was very useful and should be utilized in any forest implementation monitoring. It was helpful to have the Review Team see the complete NEPA file, analysis file and contract package, and to review the entire project documentation with the District Team that had prepared it. It was particularly insightful to be able to track mitigation measures throughout the entire process to ensure that recommendations included in the NEPA documentation did, in fact, become part of the contract and implementation plan, and actually happened on the ground.



- b. The importance of implementation monitoring is recognized. Plans don't make for successfully completed projects without follow-through. This type of follow-through should be conducted both informally and as formal unit review at both the Ranger District and Forest levels. It should involve the full component of interdisciplinary team skills.
- c. The importance of defining specific desired future conditions for riparian management areas was emphasized. That includes recognizing the key processes for attaining or maintaining desired conditions. Overall, this appears to be happening fairly well in design and location of cutting units, though less so with prescribed burn plans and access travel management issues.
- d. Landform and soil mapping, analysis, and interpretation is an important technical element of project level planning and should be included in all plan development and execution.
- e. Specific riparian management objectives were not always identified as directed by the Forest Plan. Continued implementation monitoring should be conducted to ensure that these objectives have been identified.

## **Monitoring Item - EFFECTIVENESS OF RIPARIAN STANDARDS AND GUIDELINES**

1. Are Standards and Guidelines that describe desired future conditions for specific riparian areas and fish habitat being met?

From 1989 to 1992, approximately 800 miles of stream (including side channels) were surveyed using the Region 6 stream survey protocol. In 1993, approximately 123 miles were surveyed. In addition, 500 sediment samples were taken in 20 streams on the forest using McNeil sediment samplers. Temperature recording thermographs were placed in 19 streams to make continuous records of stream temperatures (2 devices failed) and maximum-minimum registering thermometers were placed in 83 streams.

The following is a summary of the compliance of sampled streams on the Wenatchee National Forest with the Forest standards and guidelines (for wood and pools, only pre-1993 streams are included. SEE footnote for a description of the standards and guidelines):

**Large Wood Pieces:** 48 percent of stream miles met the small size wood piece standard, 73 percent met the large size standard, and 47 percent met the combined standard.

**Pools:** Three percent of stream miles met the pool standard when the three foot depth requirement was considered. Removing the depth requirement results in 13 percent compliance without "plunge" pools and 26 percent compliance when "plunge" pools were included. A plunge pool is a pool which spans the

entire low-flow channel width, but which is not longer than wide.

**Fine Sediment:** The degree of compliance is assessed by determining the percent of stream reaches meeting standards. The percent of stream reaches meeting the standard, as determined using the revised analysis method (SEE the 1993 Fisheries and Watershed Monitoring Report for the details of this revision) is:

Year	1990	1991	1992	1993
Percent meeting	74%	81%	65%	60%

Since, in some cases, different streams were sampled during these years, the above figures cannot be used to indicate a trend in fine sediment conditions over time. However, following the same stream reaches over time is a valid way to track trends. In the 12 stream reaches sampled each year since 1991, 78 percent met standards in 1991 and 63 percent in 1992 and 1993. In 8 reaches sampled since 1990, 71 percent, 76 percent, 59 percent, and 71 percent met standards in 1990 through 1993, respectively. In each case, the lowest sediment year was 1991.

**Temperature:** 13 out of 17 sampled streams (76 percent) exceeded the maximum daily water temperature standard on 264 stream days and exceeded the average 7-day maximum for 472 stream days, as measured by thermographs. The number of days exceeding each standard give an indication of how serious the high temperatures were. The greater the number of days, the more stress cold water-adapted aquatic life is subjected to.

Year	Number exceeding standard/ Total # Streams Sampled	Number of stream days exceeding daily maximum	Number of stream days exceeding average 7 day maximum
1990	3/3 (100%)	36	64
1991	9/12 (75%)	153	318
1992	10/11 (91%)	351	478
1993	13/17 (76%)	264	472

For the maximum-minimum data in 1993, 26 streams out of 83 monitored exceeded the daily maximum standard for at least one day. Three of those exceeding the standard were sampled downstream of the Forest boundary.

Parameter definitions had much to do with the results for wood and pools. Slightly changing the definition of large woody debris or the definition of a pool resulted in large changes in percent compliance. The biological or morphological significance of each parameter definition needs to be more precisely determined. For details of pool and wood results, see the "Stream Health Parameter/Desired Future Condition Analysis Report." For the temperature and sediment results see

the “1993 Fisheries and Watershed Monitoring Report.”

This definitional sensitivity was clearly visible when comparing other sets of proposed standards; i.e., from PACFISH and TFW. Many of the differences in compliance were due to differences in the definitions of what constituted large wood or a pool.

In addition, it was clear that one set of standards and guidelines was not appropriate across all the diverse stream/watershed types found on the forest. Even in many unimpacted areas, the streams did not meet standards. For example: a stream reach through an alpine meadow may not have a large amount of large woody debris in it due to the limited potential for any wood recruitment. Standards that are appropriate to the potential of an area need to be developed and applied.

Such a project to develop watershed-specific standards is now underway on the Forest. Our goal is to develop Forest watershed-specific parameters which will describe healthy systems based upon physical characteristics (land form, geology, soils, valley and channel-types precipitation, etc.) and biological characteristics and objectives (riparian vegetation, fish distribution, and production potential). We will identify the processes linking the upslope to the channel, as well as physical and biological relationships. This is expected to raise the percent of stream miles that meet the revised standards. The end result of the project would be modifications to the Forest Plan standards.

In some cases, the lack of compliance with a standard is due to management practices having been/being carried out in an area. In these cases, the management practice needs to be modified or curtailed. In other cases, the lack of compliance is due to an inappropriate standard for the potential of an area. This latter situation is being addressed by the watershed grouping project described above. There is no estimate available of what percentage of the current, non-complying stream reaches fall into each of the above categories.

No matter what the current standard is, if a stream reach is below that standard, then the only projects allowed are those which do not degrade the attribute any further or which do not slow recovery. This is true unless it can be demonstrated that the potential in the area is such that the standard is inappropriate.

## **Recommendations and Actions include:**

- a. Continue to develop standards based on the ecological characteristics of a specific watershed.
- b. Ensure that projects do not contribute to any further degradation below the current standards. The implementation monitoring is a key element in keeping projects consistent with the law.

**Footnote:** The Wenatchee National Forest Plan standards and guidelines for stream structure and function are as follows:

For large woody debris, the standard for fish-bearing streams is to have a minimum of 100 pieces per mile of stream with at least 20 percent of those being large size, greater than or equal to 50 feet in length and greater than or equal to 20 inches in diameter. The small size woody debris needs to be greater than or equal to 50 feet in length and greater than or equal to 12 inches in diameter. The pool standards are as follows:

For fish-bearing streams with a gradient less than three percent, one primary pool per six bankfull channel widths; in fish-bearing streams with a gradient greater than or equal to three percent, one primary pool per three bankfull channel widths. A primary pool occupies greater than or equal to 50 percent of the low flow channel width and has a maximum low flow depth greater than or equal to 3 feet. In non-fish-bearing Class 3 streams, there is no depth requirement for the pools and in Class 4 streams there is no numeric pool standard. The fine sediment standards call for less than or equal to 20 percent fine sediment less than or equal to 1.0 mm in diameter in spawning gravels in forest streams. The water temperature standard for Class I, Class II, and fish bearing Class III streams calls for a maximum daily temperature less than or equal to 61°F and an average 7-day maximum less than or equal to 58°F.

## **Monitoring Item - FISH MANAGEMENT INDICATOR SPECIES (MIS) Populations**

1. Are viable populations of Management Indicator Species (MIS) being maintained?

The Wenatchee National Forest and the Washington Department of Wildlife have been cooperatively monitoring bull trout since 1989. The following approach to bull trout monitoring has been developed:

1. Conduct presence/absence surveys to determine distribution and relative abundance.
2. Establish index streams based on the distribution surveys to monitor population trends.
3. Conduct habitat monitoring through the Level II Stream Inventory Program.
4. Once distributions are fairly well established, determine juvenile rearing densities and habitat preference in order to establish population goals and ensure we are monitoring the correct habitat components.

In 1993, spawning surveys were conducted on 11 streams on the forest (Number 2 on the above list). Nine of those streams were index streams that have been monitored every year since 1989. The trend in those numbers for the nine streams is presented in the following table:



Year	1989	1990	1991	1992	1993
Redd Count	282	208	489	525	477

The 1993 total represents a nine percent decrease from the 1992 total, which was the highest total found over all the years of the survey. Two streams out of the 9 contained over 60 percent of the total redds. The overall trend over the five years is encouraging, a sharp jump in redds has occurred in the last three years in comparison to the 1989-1990 period. Fishing was totally closed in one of the most productive bull trout streams on the forest in 1991, which may have helped the population increase. However, for a majority of systems, there were fewer redds counted in 1993 than in the peak years of 1991 or 1992.

The trend by drainage is as follows:

• Bumping	Peak in 1991, decrease since
• Chiwawa	Peak in 1991, decrease since
• Entiat	Peak in 1991, decrease since, but overall numbers are small (less than 25)
• Keechelus	Peak in 1991, but numbers are very small (less than 10)
• Kachess	Peak in 1991, but numbers are very small (less than 10)
• Tieton	Peak in 1992, 1993
• White	General increase since 1989 with 1993 the highest

For the systems where overall numbers are small (less than 25), the change could be the result of random variation rather than a true decrease. Ignoring the small systems, there have been two systems that have an increasing trend over the survey time period and two systems that have decreased since 1991. The time period since 1989 is short and as a result there is less confidence in the trends.

It is important to control poaching, which may be one of the largest negative impacts on the population. It is also important to ensure that no projects take place that might adversely affect habitat and/or the fish themselves. With only two streams representing such a large percentage of the surveyed redds, and the recent downward trend on several streams, bull trout are vulnerable to human or natural disturbances on the forest.

## Recommendations and Actions Include:

- a. Continue to cooperatively monitor bull trout spawning population.
- b. Ensure that no management actions adversely affect habitat or populations. The implementation monitoring is a key element in keeping projects consistent with the law.
- c. There is a need to reduce poaching of bull trout. This may be achieved by closing streams to fishing and reducing recreational access. The first option is the responsibility of the Washington Department of Fisheries and Wildlife. This recommendation needs to be strongly considered for areas

such as Box Canyon Creek, which gets heavy recreational use, has very low spawning population, and where evidence of poaching has been noted.

## **Monitoring Item - COLUMBIA RIVER BASIN ANADROMOUS FISH POLICY IMPLEMENTATION AND SALMON SUMMIT ACTION PLAN COMMITMENTS**

1. Are the actions in the Policy Implementation Guide (PIG) for Columbia River Basin (CRB) Anadromous Fish Habitat being implemented as planned?

**Establish Objectives:** We have completed applying the Regional Smolt Habitat Capability Protocol on two of our 25 Forest watersheds. The Ranger Districts are using the protocol to establish outputs and objectives for habitat rehabilitation work. In addition, four of our six Ranger Districts are in the process of performing watershed analyses to determine the current conditions and define desired conditions based on current information regarding physical and biological processes. Smolt habitat capability is to be estimated for those watersheds. We will complete smolt production objectives for our watersheds, using not only the Regional Protocol, but also the results of studies currently being conducted in the Wenatchee system by the Chelan County P.U.D. and the Yakima Drainage as part of the Yakima-Klickitat Production Project. These objectives will be incorporated into our Forest Plan.

We feel, with current funding levels, it is more important to refine our understanding of watershed processes, institutionalize a watershed approach to ecosystem management, develop, implement, evaluate, and report on monitoring programs and continue our habitat inventory and desired future condition analysis. The Yakama Indian Nation has agreed with our priorities.

In December, the Wenatchee National Forest and the Yakama Indian Nation signed a Memorandum of Understanding for the cooperative management of anadromous fish habitat. The Yakama Indian Nation withdrew their appeal of the Wenatchee National Forest Plan with the signing of the Memorandum of Understanding.

**Desired Future Conditions (DFC):** The Wenatchee National Forest described DFCs in the Forest Plan based on minimum acceptable numeric standards. We are currently working to refine these standards based upon the physical and biological potential of our watersheds. Our goal is to develop Forest watershed-specific parameters, which will describe healthy systems based upon physical characteristics (landform, geology, soils, valley and channel-types, precipitation, etc.) and biological characteristics and objectives (riparian vegetation, fish distribution, and production potential). We also plan to identify the processes linking the upslope to the channel, as well as the physical to biological.

In 1993, we further developed our Geographic Information System (GIS) layers and placed the stream survey database (SMART) into a personal computer format.

We worked on linking the SMART data to GIS. We completed an analysis of all our stream inventory data to determine how well watersheds on the Forest are meeting Forest Plan Standards, PACFISH Standards, and standards suggested by the Yakama Indian Nation (SEE Stream Health Parameter/Desired Future Condition Analysis.) We started the analysis process necessary to develop watershed-specific parameters, even though we were constrained by funding. The DFC refinement process is coordinated with Pacific Northwest Experiment Station personnel.

**Inventory:** Stream inventories were completed on 123 miles of stream in FY-1993, which exceeded the goal of 90 miles.

**Monitoring:** The Forest Plan established Monitoring Guidance in Appendix "F." For the past two years, 1992 and 1993, Forest watershed and fisheries personnel have met in the winter to review the previous years' monitoring results. Based upon the results, Appendix "F," any new information, and the final budget, they developed a monitoring plan for the year. The 1993 plan has been implemented and the report has been completed (see 1993 Fisheries and Watershed Monitoring Report).

**Riparian Acquisition Opportunities:** There are numerous private parcels with riparian habitat within the Forest boundary. We have not prioritized each individual parcel. What we have done is identify priority areas and parcels within those areas where our inquiries have identified landowner interest in government purchase. With a positive response, we proceed with an appraisal and adjust as necessary our priority list for possible eventual purchase through the Federal Land and Water Conservation Fund. In 1993, we completed one 22-acre purchase with about five-tenths of a mile of anadromous stream frontage within the White River flood plain. We completed appraisal on 3 additional high priority properties, which totals 840 acres of land adjacent to anadromous fish streams.

**Live Stock Management:** Fifteen of the 18 allotments within anadromous drainages have been administered to Forest Plan standards. Funding, manpower shortages, and loss of personnel has limited our ability to administer to Forest Plan standards the remaining three allotments. However, in each of those three allotments, changes have been implemented (reduced livestock numbers, fenced the riparian areas, and rested the allotment) that will bring them to Forest Plan standards. See the Forage Utilization Monitoring Section of this document for more details. Rangeland reform will direct National Forests to take stronger administrative actions to ensure compliance.

**Mining Management:** The majority of the mining activities on the Forest are in the Swauk and Peshastin Creek drainages. Numerous small claims are located in the drainages. Beginning in 1993, Districts monitored mining operations to determine if operators were operating within their operating plans. Of 66 mining operations monitored, 17 (26 percent) were out of compliance in one aspect or another. The problems ranged from a backhoe needing a spark arrestor, to inadequate reclama-



tion bond amounts, to erosion from roads or mine areas. Six of the problems involved erosion control or protection of streams. Two of those six were corrected in-season.

**Diversion Screening and Man-Made Barriers:** The Forest completed an inventory of divisions in early 1992 and none were found to need screening. Nor were they creating barriers, other than the large dams in the Yakima River drainage, which fall into a whole other arena. The vast majority of irrigation and water divisions are downstream of the Forest boundary. An action item for 1994 will be to ensure, annually, that the few screens located on the Forest are functioning properly.

Other barriers, such as road crossings, are inventoried during stream and road condition surveys. If a barrier is found, it is recorded and will be added to the Fish and Watershed Improvement Data Base.

**Habitat Improvement:** Two miles of anadromous stream were improved.

**Roads:** Twenty-six miles of road were closed, 60 miles were obliterated, and 31 miles were reconstructed. These figures include all roads, not just those in valley bottoms. The road closures reported were all done to benefit watershed and fish resources, either through reduction of sediment or improving watershed function in anadromous watersheds.

**Direct Riparian Rehabilitation:** A total of 294 acres of rehabilitation was accomplished. As previously mentioned, the road work discussed will benefit anadromous fish. Direct benefits include rehabilitation of tributary stream crossings, 21 structures, 15 acres. Thirty-five acres of stream/riparian habitat were improved through the construction of side channels, 3 water chances (3 acres) were improved to prevent chronic sediment input, for a total of 53 acres of improved riparian habitat. Additionally, the Forest completed over 280 miles of road condition surveys. These surveys identify and prioritize sections of road contributing to stream sediment.

In 1993, the Forest began a watershed analysis process. Each District began a process of identifying current watershed/fish habitat conditions, determining a desired condition based upon biological and physical potential. Finally, personnel identified management actions needed to achieve or maintain the desired condition. This type of approach is consistent with the President's Forest Plan Preferred Alternative and we feel it will help us better manage Fish and Watershed resources.

**Interpretation and Education Sites:** Five interpretation and education sites were established. Three informational documents were developed and 15 external workshops or presentations were conducted.

## **Recommendations and Actions Include:**

- a. Continue the progress the Forest is making to refine our understanding of watershed processes.
- b. Institutionalize a watershed approach to ecosystem management.



- c. Develop, implement, evaluate, and report on the monitoring program.
- d. Continue our habitat inventory and desired future condition analysis.

## **Monitoring Item - AQUATIC HABITAT OBJECTIVES**

1. Are stream restoration and habitat improvement projects meeting Aquatic Habitat Objectives as stated in the Forest Plan, Policy Implementation Guide (PIG), and Salmon Summit?

The Forest fish and water program managers scheduled a review of resource improvement projects on each Ranger District. Hydrologists and fish biologists from all Ranger Districts were asked to attend at least one review on another Ranger District so as to assist in the critique and facilitate information exchange.

Habitat improvement projects consisted of placing large woody debris in streams and lakes. This provides cover and create pool habitat to be used for cover and as a refuge during high flow periods. Side channel habitat was also created to be used as a rearing area for juvenile salmonids, and evaluation was done to ensure the continued functioning of fish passage devices.

The Wenatchee Forest is implementing a change in philosophy in habitat improvement projects. Projects now and in the future will be based on needs as identified in watershed analysis which uses an ecological approach to define processes of significance for an entire watershed. A specific improvement project will be defined as a needed step to move a watershed system from a current condition to a desired future condition. This differs from the past where projects were based on site specific needs assessments which did not necessarily reflect the priority needs of the watershed as a whole.

The watershed analysis approach to defining resource restoration and improvement needs will enable a better definition of priorities of work needed to move a watershed system from a current to a desired future condition. This will result in a more efficient and effective restoration and improvement program.

Our corporate knowledge of how to build stream channel structures is improving and field work indicates the benefit of that experience.

In ten instances in which wood had been placed in streams and lakes, the wood was in place and being used by fish in a majority of the cases in which fish use was sampled. In at least one case, due to monitoring design and the short period of time since completion, it was difficult to tell if more pools had been created. Three of four side channels were being used by juvenile salmonids, while the fourth side channel had only been open a short period of time before the survey. Two out of three fish passage devices checked needed improvement to be fully functional. The third was in good condition.

## **Recommendations and Actions Include:**

- a. In the past, stream improvement projects were based on recognition of a local problem. Now they are based on a detailed assessment of current conditions.
- b. The emphasis on watershed analysis in FY-1994 will put more emphasis on watershed guide definition of resource improvement needs. We need to keep developing site-specific standards for habitat conditions that reflect a definition of desired future conditions that are based on key hydrologic processes. As these site-specific standards are developed, they will be incorporated into the Forest Plan.

## **Other Monitoring Activities - DETERMINATION OF THE CAUSE OF THE FISH KILL ASSOCIATED WITH THE MEADOW CREEK FIRE**

Following reports of large numbers of dead fish in Meadow Creek during the suppression of a 400 acre fire, dead fish were counted; water and fish samples were collected and analyzed; and an investigation of the possible chemicals used to treat the fire was carried out.

Over 1,000 dead and dying fish were counted along a 3-mile section of Meadow Creek stream downstream from the fire. Most were sculpins and rainbow trout. Water samples revealed apparently high levels of ammonium, but not enough volume of water was sampled to determine how much was ammonia (NH<sub>3</sub>), a highly toxic compound to fish. Estimates of ammonia concentrations based on the pH indicate the levels were below that at which fish mortality usually occurs. However, the samples were taken at least 24 hours after fish mortality was first noticed. There was no evidence of any fire retardant dropped directly in the stream; however, there was a report of foam entering the creek as a pumper truck filled with water. We have no information on what the chemical involved might have been. The fish samples indicated that the fish had come in contact with some external irritant/contaminant, but there was no way to determine exactly what that might have been. One possibility may have been ammonia dissolving into the stream from smoke trapped next to the ground by an air inversion. In the end, the cause of the fish kill was left unresolved.

## **Recommendations and Actions Include:**

- a. Continue efforts to limit the use and possible spills of fire suppression chemicals in streams or riparian zones.
- b. In the event of a fish kill, collect large samples of water immediately.

## **K. RANGE MANAGEMENT AND RELATED ACTIVITIES**

### **Monitoring Item - FORAGE UTILIZATION**

The goal is to provide opportunities to enhance other resource values through the use of livestock to shape desired plant communities. The monitoring question is:

1. Are the forage utilization levels consistent with goals for riparian and upland areas?

In 1993, the grazing season was affected by late spring precipitation in the upper elevations and extended drought in the medium and lower elevations. The key use grazing areas on the forest, occurring on lower elevations, were stressed due to summer temperatures and low soil moisture, resulting in a shortage in supply of forage.

Grazing utilization monitoring was completed on 20 out of 22 active allotments. Of the 166 utilization estimates recorded, 39 exceeded the maximum 50 percent utilization standard in the Forest Plan. On two sheep allotments it was noted that grazing areas were within standards, but bed-grounds exceeded standard allowable condition 50-75 percent of the time.

In another case, it was noted that elk use ranged from 10-20 percent prior to the domestic livestock turn-on-date. In some cases administrative actions have already been implemented and in others continued monitoring will determine if grazing levels should be adjusted. Administrative actions already taken include:

- All annual grazing plans will include Forest Plan standards.
- Conversion of use from cattle to sheep to protect riparian and wet meadow areas on one allotment.
- Requiring permittees to remove their livestock early from three grazing allotments.
- Closing two pastures and reducing numbers from 88 head to 52.
- Resting one area for four years to facilitate the watershed improvements completed in Mitchell Creek during 1991 and 1992.
- Actual use was reduced on one allotment from 529 permitted livestock to 285 in 1993. Further reductions in late summer/fall use is anticipated to protect riparian vegetation.
- One permit waived to Forest Service will not be reallocated until allotment conditions improve.
- On one District there were three cases of trespass and unauthorized use. One case went to court and two others were settled verbally by following Forest Plan standards.

## Recommendations and Actions Include:

- a. Continue to take administrative actions to achieve desired forage utilization standards. Actions include: reducing the season of use, reducing livestock numbers where needed, resting of certain key use areas, closing pastures, and charging for excess use where appropriate.
- b. Continue to monitor forage utilization to determine how well Forest Plan Standard is being met.
- c. Continue to support a cooperative research project with Pacific Northwest Experiment Station to determine level of meadow use by livestock and elk on portions of the Naches Ranger District.
- d. Permits, when reissued, will include Forest Plan standards relating to grazing and riparian values.

## L. ROAD MANAGEMENT

### Monitoring Item - ROAD CONSTRUCTION/RECONSTRUCTION

The goal is to insure that the transportation system is being constructed/reconstructed to serve the planned resource management objectives at the assumed annual rates.

Roads are to be designed as safe and durable structures suitable for their intended uses. Within the Riparian-Aquatic Habitat Protection Zone, Management Prescription EW-2, there are 11 management practices intended to minimize the amount of road and their impact. The Threshold of Variability for the road miles is 25 percent of the annual projections and 10 percent for the decade.

	Unit of Measure	Forest Plan Decade Average	FY 93 Actual
<b>Forest Road Program</b>			
Construction	Miles	2	0.1
Reconstruction	Miles	16	1.4
<b>Timber Purchaser</b>			
Construction	Miles	80	0
Reconstruction	Miles	3	3

In general, the monitoring of projects in FY-1993 indicates that the roads are serving the intended resource objectives for the management areas. However, we continue to find that roads are constructed that are unnecessary, poorly located, and poorly designed and managed. The trend for road construction and maintenance will be toward increased mitigation of environmental impacts, primarily through efforts to reduce sedimentation and to provide for fish passage.



**Forest Road Program:** The estimated average annual output for Arterial and Collector road construction and reconstruction is 18 miles per year. The actual accomplishment for FY-1993 was 1.5 miles. This program is funded, in total, by the Forest Road Program (FRP). Congress reduced funds for this program in FY-1993. The Forest Plan assumption that these projects can be completed in a 10-year period may not be valid. If so, a new assumption will be made based upon the projected rate of Congressional funding. The projects awarded in FY-1993 included the Old River Road at Naches, the Icicle Gorge Trailhead at Leavenworth, and the replacement of the Cooper Bridge at Cle Elum.

**Timber Purchaser:** The estimated average annual output for timber purchaser road construction is 83 miles. The actual accomplishment for FY-1993 was 3.1 miles. The amount of road construction and reconstruction by timber purchasers is entirely dependent upon the amount and location of the timber contracted for harvesting. Failure to reach the estimated output was caused by court injunctions related to the controversy over the northern spotted owl. The assumption that this system will be completed in the first 18 years of the plan may no longer be valid. If so, a revised rate of construction will need to be estimated when the controversy is resolved.

### **Recommendations and Actions Include:**

- a. Clarification of management direction for the Forest Road Program is needed.
- b. Additional yearly information is needed.

The Supervisor's Office will distribute additional copies of the Best Management Practices to the Districts, a plan in hand review will be done on each proposed construction project, and the Planning and Environment Staff will conduct a training session on the Best Management Practices. Given the uncertainty in the near future, it appears premature to estimate new outputs.

### **Monitoring Item - ROAD MAINTENANCE**

The goal is to insure that the transportation system is being maintained to the appropriate standard to serve the planned resource management objectives.

The Forest Plan direction is to make decisions on the operation of individual roads.

Roads Maintained for:	Unit of Measure	Forest Plan Decade Average	FY 93 Actual
Passenger Cars	Miles	1031	989
High Clearance Vehicles	Miles	3202	3464

Hundreds of decisions for the maintenance of individual roads are made on the ground with consideration for a number of annual and seasonal factors (condition, surface type, weather, traffic, mix, volume, etc.). We do not consider this variability from the Forest Plan estimates to be significant on an annual basis.

We are just beginning to experience the effects of the loss of the maintenance historically performed by timber purchasers. In the past, the purchasers have performed approximately 1 to 1.5 million dollars of maintenance annually. If we are unable to increase our appropriated (NFRD) road maintenance funds, there could be a significant reduction in the amount of the forest available to the public and also a reduction in level of comfort and ease of access.

### **Recommendations and Actions Include:**

- a. Additional yearly information needed.

Due to the uncertainty about the future, it would be premature to make new assumptions for the purpose of estimating new levels of access.

### **Monitoring Item - ROADS CLOSED/OBLITERATED**

The goal is to determine how much of the transportation system is no longer needed for management activities. The monitoring question is:

1. Are short- and long-term needs considered?

The Forest Plan Standard is that, unless there is a resource need documented in the project analysis, currently open roads will remain open and newly constructed roads will be closed to public vehicle access.

	Unit of Measure	Forest Plan Decade Average	FY 93 Actual
<b>Roads Closed, but retained in the system</b>			
<b>Total System</b>	Miles	1703	903
<b>Roads Obliterated</b>			
	Miles	NA	180

The Forest has obliterated approximately 430 miles of road in the past 3 years. The great majority of those roads were previously closed to the public and, therefore, there has been a decrease in the total miles of road and the miles of closed road retained in the system.

The Forest is continuing a comprehensive process of access and travel management and this year will undertake an intensive watershed analysis process that is likely to identify additional roads to be closed or obliterated.

## **Recommendations and Actions Include:**

- a. Additional yearly information needed.

Due to the uncertainty about the future, it would be premature to make new assumptions for the purpose of estimating new outputs until access and travel and watershed analysis processes are finalized.

## **M. INSECT AND DISEASE**

### **Monitoring Item - INSECT AND DISEASE CONTROL**

The goal is to assure that management practices do not contribute to increases in the incidence of destructive insects and diseases such as spruce budworm, Douglas-fir, tussock moth, pine beetle, mistletoe, root rots, and others. The monitoring question is:

1. Are destructive insect and disease organisms remaining below potentially damaging levels following management activities?

The annual Aerial Insect Survey Maps were reviewed and sent to the Districts. A general decrease in insect-caused tree mortality was indicated, especially in grand fir stands. This is primarily due to the return of more normal rainfall and a decrease in fir engraver beetles.

Of particular concern is the current trend to avoid regeneration harvest of any kind. Partial cutting, unless carefully employed, can leave stands in a higher risk to insects, disease, and fire. (SEE Silvicultural Harvest Methods.)

Monitoring this year on specific sales for insect and disease conditions indicated the following:

- On the Chum Salvage, trees selected for removal were dead, diseased, or overstocked. Not enough trees with mistletoe were removed to do much improvement of the long-term health of the stand.
- The Pine Bluff Sale was one of the larger regeneration harvest sales on the Forest. Completed units have both desirable larger leave trees and a disease and insect prone understory. It was recommended that light burning should be done to remove some of the high fire hazard and decrease the thin barked disease prone understory.
- Thin Mud was an excellent stocking control thinning that should reduce beetle damage and increase vigor of the leave trees.
- On the Maverick Sale, some high cost but effective management of competing vegetation was being done with a "spider" machine. Brush clumps and slash were piled to expose mineral soil for reforestation.

## **Recommendations and Actions Include:**

- a. The evaluation is not conclusive; additional study and information is needed before action is taken.

## **N. FOREST FIRE PROTECTION**

### **Monitoring Item - Forest Fire Protection**

The goal is to provide protection from wildfire for forest users, facilities, and forest resources in an efficient manner. The monitoring questions include:

1. Are implemented fire suppression strategies adequately protecting the public, facilities, and forest resources?
2. Are costs of protection in line with those projected by the National Fire Management Analysis System?

The fire season for 1993 was affected by some unusual weather patterns. Moist, spring-like conditions continued into July resulting in limited fire suppression being needed. Later in the year, a very dry pattern developed in September and continued on in the fall requiring fire suppression actions to be taken into the month of November. Twenty-one lightning caused fires were suppressed during the year and 97 human caused fires occurred. Together, these fires burned 661 acres of National Forest Land. Three of these fires exceeded 100 acres in size and were managed by the Forest's Incident Management Teams.

Continued emphasis was placed on developing interagency programs to improve the efficiency of our Fire Management Program. The Forest continued to participate in the Central Washington Interagency Communication Center (CWICC), to staff fire suppression engines, and to develop Overhead Teams in partnership with the State of Washington Department of Natural Resources. Participation of the local fire districts in the staffing of the Initial Attack Fire Engines also occurred.

Fire suppression resources assisted other agencies on many fires across the State of Washington and throughout the western United States. The Forest continued to host several fire suppression resources intended for use nation-wide. These include an Interagency Hotshot Firefighter Crew based at the Entiat Ranger District, a helicopter crew with rappelling capability based on the Chelan Ranger District, and two large Air Tankers and one Lead Plane stationed at the Wenatchee Tanker Base at Pangborn Field. A large cache of fire suppression equipment is also housed at the Pangborn facility.

Appropriate fire management training continues to be an emphasis item for the Forest. Managers continue to organize for each fire season by providing advanced training and encouraging employees to participate on Type II Overhead Teams. All employees available for fire suppression receive appropriate initial attack training.



In addition to the fire suppression program, strong programs were maintained in fire detection and prevention. These activities are viewed as essential elements of the Fire Management Program. The number of human caused fires is of concern to the managers of the Forest. Many of these fires occurred in the fall during the various hunting seasons and suggest that a review of our management procedures during this period is appropriate.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

### **Monitoring Item - USE OF PRESCRIBED FIRE**

The goal is to provide appropriate, efficient application of prescribed fire in support of the Forest Management Program. The monitoring questions include:

1. Are the acres being treated with prescribed fire meeting expected resource management objectives?
2. Are forest fuel loadings exceeding natural levels and, therefore, placing Forest users, improvements, and/or resource values at risk?

The use of fire as a tool to manage unwanted vegetation and debris, and to prepare areas for the planting of new trees, continued to be a significant portion of the work for Forest personnel. During FY-1993, our reports indicate that 3,420 acres were treated with prescribed fire in 152 separate units. This is 751 less acres than were treated in FY-1992. The number of separate applications of prescribed fire decreased in FY-1993 to 152 from 296 in FY-1992.

The escape of several of these prescribed fires resulted in an ongoing review of the procedures which must be followed to ensure successful completion of these projects. One focus of this review is to analyze our ability to suppress these fires should adverse weather events occur. This review should provide useful information for our program managers in future years.

The Prescribed Natural Fire Plan for the Alpine Lakes Wilderness was completed and approved. Implementation should begin in 1994.

### **Recommendations and Actions Include:**

- a. Many scientists and members of the public are becoming increasingly concerned about the ecological effects of the exclusion of fire from forest ecosystems. There is a need to gather additional specific information and propose alternative management practices.

## **O. AIR RESOURCE MANAGEMENT**

### **Monitoring Item - Air Resource Management**

The goal is to maintain air quality in conjunction with all cooperating agencies. The monitoring questions include:

1. Are the impacts on air quality being considered in the management activities being proposed?
2. Is the Forest in compliance with direction outlined in the Clean Air Act, the Washington State Implementation Plan, and National Forest Policy?

During FY-1993, the Forest's first Interagency Monitoring of Protected Visual Environments (IMPROVE) site was installed on Snoqualmie Pass. This will allow the Forest to begin gathering data on the chemical composition of the atmosphere as well as monitor the attributes which affect visibility at this location. This data will be included in the National IMPROVE Data Base.

Realizing the need for additional skills in the Air Resource Management discipline, the Forest helped establish a Zone air resource management position. This position will be hosted by the Mt. Baker-Snoqualmie National Forest, but provides assistance to the Wenatchee National Forest as requested.

The Forest continued to work with other State and federal agencies to improve the quality of the air in Eastern Washington. There were on-going efforts with the Washington State Department of Ecology and the Yakima County Clean Air Authority to lower the particulate levels in the Yakima Valley. The Forest also continued to comply with the direction issued by the Washington State Department of Natural Resources (DNR) for the management of smoke emitted from prescribed fires. This year the Forest paid in excess of \$10,000 to the DNR to administer this program.

All Districts of the Forest continue to improve their techniques and documentation for the inclusion of Air Resource Management considerations in environmental documents. These efforts should prove to be effective as the plans are implemented in future years.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **P. MINERALS**

### **Monitoring Item - MINING SITE RECLAMATION**

The goal is to ensure that disturbed lands are reclaimed to a use consistent with the rehabilitation standards and guidelines.

The monitoring that was done indicates that approximately 52 acres were disturbed by mining-related activities on the Forest. Of this, approximately 34 acres (65 percent) were satisfactorily reclaimed and met our reclamation objectives. The remaining 35 percent were not reclaimed. In these cases, the operations are continuing or the operators have been told to bring the reclamation into compliance.

Number of Plans of Operations and Notices of Intent	115
Number and (%) Monitored	68 (59%)
Number of Acres Disturbed	52
Number of Acres and (%) Reclaimed	34 (65%)

Due to the lack of Forest Plan level of funding, 100 percent of the reclamation efforts on the Forest were not monitored. Of those that were monitored, 65 percent had been appropriately reclaimed. Some of the remaining 35 percent have not been reclaimed because the operation is continuing. In other cases, adequate reclamation will either be conducted or reclamation bonds will be used to bring the reclamation up to standard. It is assumed that similar results will be found on those operations that were not monitored.

### **Recommendations and Actions Include:**

- a. Additional monitoring should be conducted to ensure adequate reclamation is being completed.
- b. The evaluation is not conclusive because 100 percent monitoring could not be done.

The objectives in the plan appear to presently be adequate and performance bonds and regulatory authority provide for compliance when that is not being achieved.

### **Monitoring Item - MINING OPERATING PLANS**

The goal is to ensure that mining operations meet Forest Management Goals and Management Area Standards and Guidelines.

The Ranger Districts indicate that approximately 115 Plans of Operations and Notices of Intent were processed this year. Of these, 60 percent of the total number of operations were monitored. Based upon the monitoring that was done, it is estimated that approximately 52 acres were disturbed with 65 percent of that being adequately reclaimed. Of those activities monitored, 82 percent were adequately meeting the objectives of the Forest Plan.

Number of Plans of Operations and Notices of Intent:	115
Number and (%) Monitored:	68 (60%)
Number and (%) of Those Monitored were in Compliance:	56 (82%)

Due to the shortage of Forest-Plan level of funding, monitoring could not be done on 100 percent of the operations. As a consequence, the actual percentage of operations meeting our objectives is not known. This will continue until funding is increased to the Forest Plan level. Monitoring is being done on the larger, more environmentally sensitive operations and it is assumed similar results would be found on those operations that were not monitored.

### **Recommendations and Actions Include:**

- a. Continue to request additional funding that allows 100 percent monitoring of all mineral-related activities
- b. The evaluation is not conclusive without 100 percent monitoring.
- c. Based upon the monitoring that was completed, a Forest Plan adjustment is not necessary at this time.

The objectives and standards and guidelines in the plan appear to be adequate, but the level of funding is inadequate to ensure 100 percent compliance. That is a budget problem, not a monitoring problem.

## **Q. COMMUNITY EFFECTS AND RESOURCE BUDGETS**

### **Monitoring Item - COMMUNITY EFFECTS**

The goal is to provide local communities with a constant source of opportunity for the use of goods and services that provide for desired community growth. Changes in the kinds of business opportunities available today are likely over time. The monitoring questions include:

1. Are payments to counties changing?
2. Are local populations changing?
3. Are local employment patterns changing?
4. Are lifestyles, attitudes, beliefs, or values changing?
5. Are Forest contributions to area forest products industries changing?

In 1993, the fourth year for implementation of the Forest Plan, there have been many potential social and economic effects on Forest Plan implementation, the most notable being the management requirements for the northern spotted owl.



The in-migration of urban residents into central Washington has more than offset the job loss of natural resource based industries. The quality of life offered by towns and wildlands of central Washington continues to draw urban residents. The Wenatchee National Forest is an important component of that high quality environment.

The in-migration of urban residents into rural areas is occurring throughout the United States as urban residents move to logging, farming, and tourist communities for their quality of life. This is causing social impacts as new residents bring urban values and attitudes that are different than those of long-time residents.

## 1. Changes in Payments to Counties

The following are payments to counties during FY-1993. By law, 25 percent of the revenues collected by the Forest Service from the use of National Forest system lands and resources are returned to the counties as a source of funds for schools and roads. In Washington State, half the funds (school portion) are redistributed throughout the State, while the road portion remains within the county.

Most of the receipts are the result of timber sales. The final payments were computed under a provision of the Interior and Related Agencies 1992 Appropriation Act. Section 316 of that Act provides for payments to States and counties of not less than 90 percent of the five-year average payments for Fiscal Years 1986-90 for those National Forests affected by decisions on the northern spotted owl. This provision has delayed the effect of declining timber harvest revenues, resulting in \$1.9 million of additional payments to Chelan, Kittitas, and Yakima Counties in 1993.

### PAYMENTS TO COUNTIES

	FY-91 PAYMENT	FY-92 PAYMENT	FY-93 PAYMENT	'93 PAYMENT IF BASED ON ACTUAL RECEIPTS
CHELAN COUNTY	\$2,144,756.14	\$2,061,905.09	\$1,948,326.26	\$ 950,291.22
DOUGLAS COUNTY	2.99	2.86	2.70	1.32
KITTITAS COUNTY	885,707.05	790,851.86	731,547.75	348,604.01
YAKIMA COUNTY	3,351,123.98	2,674,761.01	2,406,458.57	1,226,951.35
<b>TOTAL</b>	<b>\$6,392,590.16</b>	<b>\$5,527,520.62</b>	<b>\$5,086,335.28</b>	<b>\$2,525,847.96</b>

## 2. Change in Local Population

This past year showed a continuation of the significant population growth that started in 1989. Chelan, Douglas, and Kittitas Counties showed strong in-migration, while most of Yakima County's growth was due to births.

## POPULATION GROWTH

COUNTY	NATURAL INCREASE (1993)	NET IN-MIGRATION (1993)
CHELAN COUNTY	1,327	2,423
DOUGLAS COUNTY	708	1,587
KITTITAS COUNTY	320	2,155
YAKIMA COUNTY	7,792	385

## TOTAL POPULATION NUMBERS 1990-1993

COUNTY	APRIL 1990	APRIL 1991	APRIL 1992	APRIL 1993	% CHANGE Since 1990
CHELAN	52,250	53,200	54,600	56,000	7.18%
DOUGLAS	26,205	27,500	27,900	28,500	8.76%
KITTITAS	26,705	27,400	27,800	29,200	9.26%
YAKIMA	188,823	190,500	193,900	197,000	4.33%

All Data from Washington State Office of Financial Management.

The strong in-migration is due to the quality of life values in eastern Washington.

### 3. Change in Local Employment Patterns.

The State of Washington Employment Security reports for employment and wages are published on a one-year delay. The employment data for 1992 is the most recent available. The economic impact area for the Wenatchee National Forest is Chelan, Douglas, Kittitas, and Yakima Counties. This report covers those sectors that are directly affected by Forest Service activities.

The following sectors are those economic sectors directly affected by the Forest Service:

	Covered 1992 Employment	% Change 89-92	Average 1992 Wages
Wenatchee Forest Impact Area (Total)	134,203	+ 14.40%	\$17,320.16
Manufacturing: Lumber & Wood Products	2,041	+ 6.58%	\$23,822.64
Paper & Allied Products	707	+ 10.82%	\$29,449.79
Retail Trade: Eating & Drinking Places	8,074	+ 12.83%	\$ 7,452.19
Services: Hotels & Other Lodging Places	1,723	- 12.18%	\$ 8,501.45

Individual County Trends for the following sectors show the following changes:

### **TOTAL EMPLOYMENT AND WAGES BY COUNTY**

<b>COUNTY</b>	<b>Covered 1992 Employment</b>	<b>% Change 89-92</b>	<b>Average 1992 Wages</b>
CHELAN COUNTY	30,655	+ 15.92%	\$18,295.84
DOUGLAS COUNTY	8,091	+ 17.69%	\$14,871.59
KITTITAS COUNTY	9,538	+ 11.18%	\$17,419.58
YAKIMA COUNTY	85,919	+ 13.94%	\$17,191.60

### **MANUFACTURING - LUMBER AND WOOD PRODUCTS**

<b>COUNTY</b>	<b>Covered 1992 Employment</b>	<b>% Change 89-92</b>	<b>Average 1992 Wages</b>
CHELAN COUNTY	208	- 42.86%	\$19,360.58
DOUGLAS COUNTY	N/A	N/A	N/A
KITTITAS COUNTY	156	- 18.75%	\$24,083.33
YAKIMA COUNTY	1,677	+ 23.40%	\$24,351.82

### **MANUFACTURING - PAPER AND ALLIED PRODUCTS**

<b>COUNTY</b>	<b>Covered 1992 Employment</b>	<b>% Change 89-92</b>	<b>Average 1992 Wages</b>
CHELAN	N/A	N/A	N/A
DOUGLAS	N/A	N/A	N/A
KITTITAS	N/A	N/A	N/A
YAKIMA	707	+ 10.82%	\$29,449.79

### **RETAIL TRADE - EATING AND DRINKING PLACES**

<b>COUNTY</b>	<b>Covered 1992 Employment</b>	<b>% Change 89-92</b>	<b>Average 1992 Wages</b>
CHELAN	2,098	+ 20.30%	\$7,530.03
DOUGLAS	478	+ 8.64%	\$7,029.29
KITTITAS	1,189	+ 21.20%	\$7,513.04
YAKIMA	4,309	+ 7.97%	\$7,444.42

## SERVICES - HOTELS AND OTHER LODGING PLACES

COUNTY	Covered 1992 Employment	% Change 89-92	Average 1992 Wages
CHELAN	852	+ 2.53%	\$8,827.46
DOUGLAS	N/A	N/A	N/A
KITTITAS	236	+ 10.80%	\$7,415.25
YAKIMA	635	- 30.83%	\$8,467.72

These numbers need to be carefully interpreted. They represent employees and their wages that are covered by State unemployment insurance. Retail trade and service industries utilize many part-time workers, thereby bringing down average wage scales. In good economic times, these workers tend to work more hours and, therefore, average wages rise. In times of recession, they tend to work less hours. The year 1992 was generally a year of good economic expansion in eastern Washington.

The following table shows trends in employment and income by major economic sectors for the Wenatchee National Forest Impact Area and the State of Washington:

SECTOR	% Change 86-89		% Change 89-92	
	Wenatchee Impact Area	State of Washington	Wenatchee Impact Area	State of Washington
AG, FOR & Fish	38.52%	( 34.29%)	34.51%	( 37.26%)
Mining	.36%	(- 34.99%)	-10.36%	(- 11.86%)
Construction	24.98%	( 28.24%)	4.88%	( 10.71%)
Manufacturing	6.82%	( 18.91%)	6.04%	(- 4.49%)
Transportation & Public Utilities	16.72%	( 14.01%)	.78%	( 5.85%)
Wholesale Trade	20.33%	( 17.31%)	4.24%	( 6.12%)
Retail Trade	12.32%	( 16.28%)	8.52%	( 7.05%)
Finance, Insurance & Real Estate	1.34%	( 8.10%)	14.54%	( 5.93%)
Services	13.50%	( 22.48%)	12.89%	( 16.71%)
Government	9.70%	( 9.18%)	14.14%	( 12.11%)

The table shows employment trends for the Wenatchee National Forest economic impact area and the State of Washington from 1986 through 1992. The data shows that the local economy was growing slower than the State average until 1989 and faster than the State average since 1989.

Some of the statistics need to be carefully interpreted. For example, the period from 1989 to 1992 showed construction employment growing slower than the State average. This was because contractors from the Puget Sound moved into eastern



Washington and displaced local contractors. Since these contractors are centered in western Washington, their activity was reported as occurring in that area rather than central Washington.

The increase in manufacturing jobs reflects an increase in the food producing sector and the other sectors remaining stable.

After being nearly flat from 1986 through 1989, the Finance, Insurance, and Real Estate sectors grew by 14.59 percent. This sector responds quickly to changes in population growth. The increase in government employment is related to increases in local school employment.

#### **4. Changes in Lifestyles, Attitudes, Beliefs, or Values**

The population of the Wenatchee National Forest Impact Area continued to grow dramatically as urban residents continued to move here for its quality of life. As noted in last year's report, the in-migration can be characterized as Returnees, Retirees, and Urban Transplants. Continued strong in-migration has now raised housing prices in eastern Washington to the same level as most areas in the Puget Sound. This should slow migration of Retirees and Urban Transplants because these groups are generally looking for lower cost of living areas.

There have been additional businesses moving into eastern Washington for the same quality of life reasons that individuals are moving. With the development of telecommunication technology, individuals and businesses whose work is not tied to a specific location have been moving here. Realtors report that many sales representatives who have the flexibility to choose their business locations are moving to eastern Washington. This growth is expected to continue for the rest of the decade.

#### **5. Changes in Forest Contribution to Forest Products Industry**

The following table shows Forest Service harvest volume and volume sold:

##### **VOLUME IN MILLION BOARD FEET**

<b>FISCAL YEAR</b>	<b>VOLUME HARVESTED</b>	<b>VOLUME SOLD</b>
87	221	160
88	186	154
89	197	76
90	173	225
91	136	44
92	95	27
93	58	20

The volume sold in 1990 reflects the requirements of Section 318 of the Federal Budget Act. The significant drop in volume sold in 1991 is the result of the recent court and agency decisions on the management of northern spotted owl habitat. The current timber volume under contract is 77 million board feet.

### Recommendations and Actions Include:

- a. No additional action is necessary except to continue monitoring as scheduled.

### Monitoring Item - RESOURCE BUDGETS

The goal is to provide funding levels necessary to achieve outputs in the Forest Plan. The monitoring question is:

1. Are the budgets received adequate for achieving the objectives described/ projected in the Forest Plan?

The following table reflects the program budgets on the Wenatchee National Forest since 1990. The budget request for 1993 represented the first budget that was developed using the Forest Plan.

PROGRAM AREA	FISCAL YEAR 1990	FISCAL YEAR 1991	FISCAL YEAR 1992	FISCAL YEAR 1993
Recreation	\$ 2,988,000	\$ 3,027,000	\$ 3,739,000	\$ 4,535,035
Fisheries	\$ 290,000	\$ 520,000	\$ 956,000	\$ 1,381,889
Threatened & Endangered Species	\$ 215,000	\$ 244,000	\$ 255,000	\$ 175,908
Wildlife	\$ 110,000	\$ 244,000	\$ 279,000	\$ 156,329
Range	\$ 145,000	\$ 198,000	\$ 149,000	\$ 276,630
Timber	\$ 7,201,000	\$ 7,944,000	\$ 7,096,000	\$ 5,423,457
Other Resource Support to Timber	\$ 1,315,000	\$ 973,000	\$ 1,326,000	\$ 1,077,171
Watershed & Air	\$ 3,052,000	\$ 1,772,000	\$ 1,075,000	\$ 885,223
Minerals & Geology	\$ 137,000	\$ 188,000	\$ 161,000	\$ 240,104
Lands	\$ 499,000	\$ 1,257,000	\$ 4,347,000	\$ 4,328,440
Facilities & Transportation	\$ 3,298,000	\$ 5,005,000	\$ 6,200,000	\$ 3,999,503
Protection, State & Private Forestry	\$ 3,236,000	\$ 3,357,000	\$ 5,692,000	\$ 3,399,958
General Administration	\$ 2,782,000	\$ 2,691,000	\$ 4,372,000	\$ 2,419,543
Overhead Assessments	\$ 3,037,000	\$ 3,111,000	\$ 3,321,000	\$ 2,764,588
<b>TOTAL EXPENDITURES</b>	<b>\$ 28,305,000</b>	<b>\$ 30,531,000</b>	<b>\$ 38,968,000</b>	<b>\$ 31,063,778</b>

The budgets reflect emergency federal action and shifts in Congressional funding. For example, the large expenditure in Watershed and Air in 1990 reflects the cleanup and rehabilitation after the floods of 1990. The large expenditures in the Lands budget represents the land purchases in the Alpine Lakes Management Area.

The following table represents the Wenatchee National Forest's budget requests to implement the Forest Plan. The 1993 budget request is the first to be directly linked to the Forest Plan:

<b>PROGRAM AREA</b>	<b>1993 BUDGET REQUEST</b>	<b>1994 BUDGET REQUEST</b>	<b>1995 BUDGET REQUEST</b>	<b>1996 BUDGET REQUEST</b>
Recreation	\$ 6,371,000	\$ 6,421,000	\$ 7,082,000	\$ 5,073,000
Fisheries	\$ 612,000	\$ 527,000	\$ 1,268,000	\$ 1,483,000
Threatened & Endangered Species	\$ 858,000	\$ 797,000	\$ 1,349,000	\$ 1,668,000
Wildlife	\$ 749,000	\$ 668,000	\$ 1,132,000	\$ 1,453,000
Range	\$ 412,000	\$ 415,000	\$ 1,164,000	\$ 1,317,000
Timber	\$ 8,684,000	\$ 6,051,000	\$ 5,812,000	\$ 7,261,000
Other Resource Support to Timber	\$ 1,363,000	\$ 612,000	\$ 1,251,000	*
Watershed & Air	\$ 3,738,000	\$ 790,000	\$ 1,226,000	\$ 1,682,000
Minerals & Geology	\$ 398,000	\$ 398,000	\$ 566,000	\$ 1,373,000
Lands	\$ 986,000	\$ 708,000	\$ 1,000,000	\$ 1,449,000
Facilities & Transportation	\$ 9,121,000	\$ 6,652,000	\$ 6,990,000	\$ 5,970,000
Protection, State & Private Forestry	\$ 3,436,000	\$ 4,204,000	\$ 5,859,000	\$ 5,501,000
Ecosystem Management	—	—	—	\$ 1,676,000
General Administration	\$ 3,832,000	\$ 3,180,000	\$ 3,180,000	\$ 1,904,000
Overhead Assessments	\$ 4,489,000	\$ 4,218,000	\$ 3,870,000	\$ 3,480,000
<b>TOTAL REQUESTS</b>	<b>\$ 42,049,000</b>	<b>\$ 35,641,000</b>	<b>\$ 41,749,000</b>	<b>\$ 41,290,000</b>

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled.

## **P. GENERAL MONITORING OF STANDARDS AND GUIDELINES**

### **Monitoring Item - STANDARD AND GUIDELINES GENERAL**

The goal is to ensure implementation and validation of Plan standards and guidelines. Monitoring seeks to assure Forest goals, outputs, and the desired future condition. The monitoring questions are:

1. Are Forest Plan standards and guidelines being implemented?
2. Are implemented standards and guidelines achieving the expected results?

To ensure that standards and guidelines have been implemented as intended, a variety of site-specific projects were reviewed during the summer of 1993. An Interdisciplinary Team, consisting of the Forest Supervisor, Deputy Forest Supervisor, Forest Group Leaders, and others with specific expertise conducted reviews on each of the six Ranger Districts.

Site-specific projects included: watershed restoration and riparian management, road closures on several Ranger Districts, off-road vehicle management, fish habitat improvement, a grazing allotment, two road management projects, and recreation projects within riparian management zones.

The reviews revealed that the Ranger Districts are doing a good job of implementing Forest Plan standards and guidelines in project design. Environmental documents are generally increasing in quality, partially due to the emphasis placed on NEPA training. However, there are still some areas needing improvement in documents including development of subbasin riparian objectives (watershed plans) and site-specific Best Management Practices (BMPs).

Several timber sales were reviewed by a team of specialists late in 1993 to determine if riparian values were being considered and protected during sale layout. Through these reviews, it was determined that the environmental analysis record varied in the completeness of documenting riparian objectives and site-specific BMPs. However, field reviews of projects lacking complete documentation indicate that riparian values are being considered and BMPs are being implemented during sale layout on more than 95 percent of the area involved.

Specific areas requiring more attention include the following:

1. Heavy use at some dispersed recreation sites is impacting riparian protection zones through loss of vegetation, improper human waste disposal, and litter. Controls, as outlined in the Little Naches Recreation Decision Notice, are needed to improve riparian conditions associated with dispersed recreation. Additional improvements are also needed in developed campgrounds within riparian zones.



2. In order to take care of the forest-wide noxious weed problem, a Forest-wide comprehensive noxious weed plan is needed.
3. Site specific measures, including Best Management Practices and watershed analysis, are needed in some projects where activities are occurring within the riparian zone. These measures need to be documented in the appropriate NEPA documents. Most of the latest NEPA documents do have watershed objectives and Best Management Practices included.
4. Integrated Resource Analyses are not decision documents, but are the basis for further actions within the area analyzed. The next step in the process is to go directly to the projects and make NEPA analysis and decision documents for those projects.
5. Desired Future Condition is a Forest Plan-level term and it often cannot be achieved in one step through implementation of a single project. The Desired Future Condition also is considered for larger land areas such as Forest Plan allocations. Districts should be describing a more short-term result as Desired Condition in order to achieve the overall Forest Plan Desired Future Condition.
6. When accomplishing road closures, all Ranger Districts would rather have the flexibility of equipment rental over contracts. Districts do not need a Regional Handbook with standards for road closures because of the site-specific differences with each road involved.

### **Recommendations and Actions Include:**

- a. No additional action is necessary except to continue monitoring as scheduled. Recommendations, where indicated, have been made above in the appropriate monitoring items.

## **V. FOREST PLANNING UPDATE**

### **A. FOREST PLAN APPEALS**

As reported last year, decisions by the Chief of the Forest Service have been rendered on 18 of the 20 appeals received on the Wenatchee Forest Plan. The Chief has not issued decisions on the Yakama Indian Nation or the Columbia River Inter-Tribal Fish Commission Appeals. Appeal issues in both of these appeals were identical. A Memorandum of Understanding between the Yakama Indian Nation and the Forest Service was signed and the Yakama Indian Nation withdrew their Forest Plan Appeal. The Forest Service is still working with the Columbia River Inter-Tribal Fish Commission to reach settlement agreement on appeal issues addressing anadromous fish concerns.

## **B. FOREST PLAN LITIGATION**

Last year's report included information on two lawsuits filed by interest groups involving the implementation of the Wenatchee Forest Plan.

The Northwest Motorcycle Association litigation resulted in dismissal of the suit by the Eastern District Court of Washington. The Judge ruled that the Forest Plan and the subsequent closing of some trails to motorbikes did not violate the Washington Wilderness Act. Northwest Motorcycle Association had appealed this decision to the Ninth Circuit Court. The Ninth Circuit Court heard the appeal and ruled that the Eastern District Court decision was correct.

The 1992 lawsuit which was filed by Pilchuck Audubon Society contended that the Forest Plans on the Wenatchee, Okanogan, and Colville National Forests failed to assess the environmental effects associated with forest health problems. At this time, no action has been taken by the Court on plaintiff's request for temporary restraining orders and permanent injunctions.

## **C. FOREST PLAN AMENDMENTS**

The Record of Decision (ROD) for the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (FSEIS) was signed on April 13, 1994. This decision amended the Wenatchee National Forest Plan. This amendment was implemented on May 20, 1994. The monitoring presented in this report does not reflect the new management direction in the amendment. The new standards and guidelines will be monitored and presented in next year's report.

## **D. CLOSING COMMENTS**

Public insight on Forest Service implementation of the Wenatchee Forest Plan is a valuable tool for forest managers. As we proceed with implementation of the Plan we hope you will let us know your thoughts and concerns.

**My thoughts on pending amendments to the Forest Plan (see page 80):**

**Use this space for any additional comments:**

☐ **Please remove my name from Forest Plan mailing list.  
(Check this box and write your name and address below)**

We need to inform you that the Freedom of Information Act (FOIA) and the Privacy Act govern the creation, maintenance, and disclosure of Federal Governmental mailing lists. Under provisions of the FOIA, the names and addresses of persons on these lists will be released upon request, unless the request falls within one of the FOIA Exemptions.

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**WENATCHEE NATIONAL FOREST  
FOREST PLAN MONITORING REPORT**

**R E S P O N S E   F O R M**

**We would appreciate receiving your comments by November 30, 1994**

**The following are my thoughts on the Monitoring Report:**

**The following are my thoughts on current or proposed projects:**

CONTINUED ON REVERSE





